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Gibbsten & Son, Ltd.
Hall, L.
Jennings, C. & Co.
Leary, C. & Co.
Longbotham, J. & Co.
Loughurs, E. & Sons
Millar's Timber & Trading Co
Price & Low, Ltd
Priday, S.
Venesta, Ltd.

Tyres—
Bergougnan Tyre Co.
Dunlop Rubber Co. Ltd.
Michelin
North British Rubber Co.
Palatine

Underlining, &c.—
Engert & Rolfe Ltd.
McNeill, F. & Co. Ltd
Vulcanite, Ltd.
Willesden Paper & Canvas Wks

Ventilating—
Boyle, R. & Son
Dargue, Griffiths & Co., Ltd.
Ewart & Son, Ltd.
Haywards, Ltd.
Keith & Blackman Co.
Kinnell, Chas P. & Co., Ltd.
Murray, S. D. & Co., Ltd.
Rosser & Russell, Ltd.
Sturtevant Engineering Co, Ld

Wall & Ceiling Coverings—
"Arraber" Co.
Beaver Board Co., Ltd
Fiberlic
Machin & Kingsley, Ltd.
O'Brien, Thomas & Co.
Thames Mills (Calne)
Venesta, Ltd.
Young & Marten Ltd

Waterproofing—
Adamite & Co., Ltd.
Callender, G. M. & Co.
Ebner, J. F.
Kerner-Greenwood & Co. (Pudlo)
Super Cement, Ltd.
Triton (Liverpool) Ltd.
Torbay & Dart Paint Co.

Wine Bins (Iron)—
Bayliss, Jones & Bayliss, Ltd.
Farrow & Jackson

Wire Screens—
Johnson Chapman & Morris, Ld
Moriarty & Co. (1911) Ltd.
Parker, Winder & Achurch

Window Frames & Sashes
Braby, F. & Co Ltd.
Carron Company
Clark, Hunt, & Co. Ltd
Crittall Mftg. Co., Ltd.
Hayter, Ltd.
Haywards, Ltd
Williams & Williams, Ltd.

Wood Flooring—
Acme Flooring and Paving Co.
Ebner, J. F
Improved Wood Pavement Co.
Turpin's
Zeta Wood Flooring Co.

Wood Preservative—
Fuller, John H. & Co. Ltd.
Maclean Wm. Sons, & Co.
Major & Co., Ltd.
Reparo, Ltd.
Sterns, Ltd.

THE BUILDER

A RECORD OF ARCHITECTURE AND CONSTRUCTION.

WITH WHICH IS INCORPORATED THE "BRITISH ARCHITECT."

VOL. CXIX.—No. 4055. OCTOBER 22, 1920.

LOOKING ON THE CREDIT SIDE.

IN these days of anxiety and disquiet we need to be reminded that it is not on the columns of the newspapers that we must depend for the report of the best things. Ireland, Mesopotamia, India, Poland, labour unrest and soaring prices—if these matters occupy so much of our thoughts to-day there are also others which, though less advertised, we may well dwell upon, and which offer us encouragement. To these more hopeful signs we ought to give attention, nor should we take our measure of affairs without including the credit side of the matter. The pessimist may point to pre-war days with all their apparent certainty and assurance, contrasting them with the doubts and uncertainties of the present hour, but our doubts are about those very certainties and those complacent beliefs, and our doubts are teaching us. Some will say that the demand for reconstruction is only the old sentimental reforming spirit reappearing under another name, and we have learnt to distrust the reforms and philanthropies which took no sufficient count of the facts of life—offsprings of a sentimental approach, and a rather stilted culture.

A builder said to us in conversation recently that it was building, doing the work, that rewarded him enough; he did not care for making money. Wholly selfish aims, the unmitigated commercial scramble, the isolated competi ion one against the other so destructive of the best ends, is discovered to be a barren toil beside the recompense of a more disinterested and civic aim. If this is symptomatic of a change towards a better understanding of the objects of life, there are in the direction of architecture and the allied arts other signs also to be welcomed tending toward the same liberation. We see in architecture the tendency to replace what is conventional, derivative, and only hereditary with the more direct interpretation of our own needs and our own outlook. This freedom to more independent thought and practice will lead to architecture becoming more interpretative. If we build to our own needs we shall really express the life and beliefs that stir within them, which are neither Gothic nor Greek, but which once more growing out of reality may reach to something more sublime than either.

It may seem a poor record to instance one or two examples only to fortify the belief that constructive ideas and new creative forces are penetrating the arts which, amidst much that is disquieting, are full of promise for the future. We take as one example, not by any means of least importance, the desire for unification, for closer co-ordination of organisations. Past generations have seen the multiplication of societies and groups without number, ostensibly in furtherance of the cause of art, but which have tended towards overlapping, a waste of force, and the increase of divisions. The growing desire for unification and federation is a proof that larger objects are being realised. The proposals for the unification or federation of existing architectural bodies will, no doubt, be carried into effect in some form or other, and will, we foresee, be the forerunner of more extended federation between all those societies directly concerned with the welfare of art. In all this there is surely much to reassure us. We are getting proportion and reality into our thoughts and getting away from the visionary and the exploiter. That this is so is seen in the wholly different outlook with which we regard new proposals for large and speculative schemes of improvement. Instead of being in a hurry to embrace new enterprises of adornment or reconstruction, we realise the anterior need for bettering existing conditions, for "tidying up," reconciling and improving what already lies around us, for working on the material we have got, for improving our city life with better housing, for the restraint of the present licence of advertisement, and for giving all those touches which would better the common life around us. It is not only in our thoughts but in work done that there are hopeful signs.

It is too early, no doubt, to judge of the ultimate effect of the sculptures being executed on the new County Hall, near Westminster Bridge, in its present incompleted state, but there is in what is revealed of Mr. Cole's work welcome evidence of an independent and intimate approach, of a sincere and adventurous treatment. That they are not wholly successful need not detain us; time will mature and develop what has been begun in a spirit more pre-occupied from the world than the timid conventions, the ponderous orthodoxy and dulness of our official sculpture. We have had to comment on regrettable symptoms in the more established quarters of the art, which have brought it somewhat into public discredit, and we are, therefore, glad to see a spirit growing in the younger men towards a sounder craftsmanship and more unworldly aims.

We can do no more than instance one or two examples out of many, to give us encouragement at the present time, such as the impressive and beautiful etchings of architectural subjects shown recently at the Twenty-One Gallery by Mr. F. L. Griggs, in which we see not only the forms but the very spirit of Gothic revealed again. But as underlying all reconstruction there could be no more reassuring sign than the return to sounder methods of craftsmanship. It has been felt, and truly, that much talk about sound craftsmanship in the recent past has not run concurrently with the practice of it, and that those who raised the cry so much, and affected to despise commercial methods, were not always careful to accompany it with sound methods themselves. From this has arisen a good deal of the disrepute into which the old "arts and crafts" movement has fallen. There is a more manly spirit abroad. Profession without practice, exclusiveness accompanied by compromise and yielding, have become abhorrent to us.

We must not conclude without mention of the desire of drawing closer to the public, and of withdrawing from the exclusive attitude which has tended to promote the separation of art from life. The public often sees most of the game, and respect for public opinion, a contact and approach on more equal terms, recognising that we have much to learn from it, will diffuse the knowledge and understanding of architecture and the allied arts in a way that is much to be desired.

With these constructive tendencies, these hopes to inspire us, we may surely go forward with good hope that the economical and industrial difficulties around us will not prove insurmountable, and that the arts will give commanding and effective aid towards their solution by penetrating life with a more reconciled and purified temper. Seeking the good we shall find the good we seek, and if our thoughts are affirmative life will take the colour of our thoughts. To believe in the good is, in a sense, to create it. At this time of anxiety and weariness it is well to take count of those influences which are impelling the arts towards more national service. Art will take its high place in the reconstruction of life, which, differing from the old methods of reform, aims to found itself on personal nobility and zeal for the public service; on a citizenship which, while claiming reasonable independence and liberty, rests it on the sure foundations of personal character. No nation is shipwrecked except through conduct; and it is because we see the striving for better things that we shall escape shipwreck, because we shall have embraced the things belonging to peace.

NOTES.

The Science and Art of To-day.

It is not always wise for men learned in their own profession to pronounce definite opinions on work produced in other professions, and the remarks by Sir Frederick Andrews, Professor of Pathology, London University, in his Harveian Oration on Monday, at the Royal College of Physicians, may be quoted as another proof of this. Speaking on the "Birth and Growth of the Science of Medicine," he is reported to have said that he saw in our present civilisation evidence of the truth of Professor Flinders Petrie's proposition that there was a fairly regular sequence in the development of the various branches of human activity. "Art was the first to reach its highest point, and notably sculpture and architecture. Literature followed later, while science was last of all in its development, and might be delayed for 500 years or more after sculpture had reached its acme. Science was still advancing rapidly with us, but as a race we were now quite incapable of Salisbury Cathedral, Magdalen Tower, or of Henry VII's chapel. Let them consider the recent work at Cambridge on the structure of the atom and then go and look at the statue of Sir Wilfrid Lawson on the Embankment." The historical knowledge of the Professor leaves little room for question, but he is presumably not aware that in the work of Bentley, Bodley, Pearson and others, we have art which, in its own way, is a worthy successor to that of the buildings he refers to. And is it reasonable for the Professor to compare the advanced works of science with —the statue of Sir Wilfred Lawson?

Glenelg War Memorial.
Sir Robert Lorimer, A.R.A., Architect; Mr. Louis R. Deuchars, Sculptor.
(*See page* 450.)

Professional Unity and "Working Together"

Mr. Chas. McLachlan, Hon. General Secretary of the Architects' and Surveyors' Assistants' Professional Union, in his letter, which we give on page 451, makes some pertinent observations on the subject of professional unity. We are not concerned for the moment with the merits of the discussion between him and Mr. Warwick, and there may be, and probably there are, good and sufficient reasons for the formation of the Building Surveyors' and Inspectors' Association. But in reference to Mr. Warwick's hope that his Association and the A.S.A.P.U. may work together, Mr. McLachlan is on firm ground when he says:—"So-called 'working together' is not sufficient, *e.g.*, the 'working together' of the R.I.B.A. and the Society of Architects, each of which bodies now clearly sees the dire necessity for something much closer. The world of professional building workers, comprising architects, surveyors and building office staffs, is so small that it cannot afford to be split in any way whatever; complete unity is essential as to the economic conditions of their business life."

The Society of Architects.

From the list which we give on another page of officers and new Members of Council of the Society of Architects for Session 1920–21, it may be inferred that the Society will carry on its work with enthusiasm and success at least equal to that at any period in its history. The election of Sir Charles T. Ruthen as President will be noted with satisfaction not only by the members of the Society but by many outside its ranks. Apart from his work as an architect, the experience he gained during the war should be of considerable service to him and the Society during his tenure of office. During the war Sir Charles was appointed by the Government, in conjunction with Sir Leonard Powell, to investigate and report upon the use made by Government departments of their office accommodation. In January, 1918, he became Chief Inspector and Deputy Controller of Accommodation for the entire London area, and was directly responsible for the buildings occupied by Government departments in the London area, numbering well over a thousand. Since last January Sir Charles has been Chief Consulting Inspector of Government Accommodation to the Office of Works. He was knighted last year for his services to the State, rendered throughout without payment of any kind.

Architectural Instruction at University College.

We are glad to call attention to the evening courses in design and academic design and to the Atelier at University College. The evening courses are specially arranged to encourage the study of design among students engaged in offices during the day, and these students will have the advantage of being at liberty to attend the College during the day to consult the Professor (Mr. A. E. Richardson, F.R.I.B.A.) on their work. The studio instructor is Mr. Ernest P. B. Musman, B.A., A.R.I.B.A. The Atelier is to be opened in connection with the Bartlett School of Architecture for the study of advanced architectural design, and is intended for those who have obtained the degree of Bachelor of Arts (Architecture) in the University of London, to those who have obtained the Certificate of Architecture of the School and to others who have reached a standard of efficiency approved by the Director. Subjects will be set once a month, and the finished schemes are judged at the end of each month. There will also be 12-hour subjects and other competitions. The Director is Professor Richardson, assisted by Mr. James Burford, A.R.I.B.A., and Mr. J. D. M. Harvey, A.R.I.B.A.

Protection for Artists' Work.

While it is difficult to see in what way to protect the works of artists bought by private individuals from mutilation at the will of the owners, the present instance of the mutilation of a portrait painted by Mr. Augustus John brings the consideration forcibly before us. In the case of pictures by old masters, such as Rembrandt or Titian, public opinion would be greatly stirred by such iconoclasm, and probably some action would be taken. In the case of ancient buildings we have a society organised to bring public opinion to bear for their protection. The Government also exercises its authority to preserve and protect objects of national interest. It is much more difficult in the case of contemporary art, but it is not made intrinsically different because much that is produced at the present time can lay no claim to such protection. It is unfortunately the case that owing to the amount of division existing in the arts it is difficult to bring the proper weight to bear in a case of this kind but it does seem very desirable that there should be some public body that could use its influence to prevent a vandalism being perpetrated in the case of good work. The present state of public knowledge about art leaves the finest work often in the greatest jeopardy. The right "to do what one likes with one's own" is not a doctrine that can be maintained with advantage to the State, nor is it one in special repute at the present time. Instances have occurred in

Glenelg War Memorial.
SIR ROBERT LORIMER, A.R.A., Architect; MR. LOUIS R. DEUCHARS, Sculptor.
(*See page* 450.)

recent years of the removal of wall paintings in churches at the caprice of the newly appointed clergyman in the first ardours of incumbancy arising out of his curtailed and partisan outlook. Either they were not "historically" correct, or they did not conform to the conventionalities of "ecclesiastical" art, and the fact that his predecessors had been better informed on the nature of art was no protection whatever. Perhaps the work of the present time is to educate the public, which is too apt to delegate its responsibilities instead of exercising its influence against the perpetration of such vandalisms.

Slate Tablets. ONE of the many lessons which the past has for us lies in the successful results growing out of the simplest and the homeliest materials. There are many plain slate tablets—small memorials—scattered through the churches of this country, which offer a reproach to our more ornate attempts. We recall good instances of these simple slate tablets in Lechlade Church, Oxon, which are set in flush with the wall face—perhaps the most effective way, and preferable to reveal—which form a delightful note of sober colour against the background of whitewash or stone walling. These tablets, often plain oblong or square, are inscribed with the briefest inscription in large-size Roman lettering, cut into the slate, of fine design—a successful result in which the cost and material hardly count. These plain tablets, in their almost austere detachment from ornament, as though they had taken a vow of poverty, resting just on the rightness of material and uncorrupted outlook, give us the right sort of pleasure, a pleasure far beyond what some of our costliest efforts convey. Looking at these old memorials suggests the desirability of approaching the matter with less self-consciousness, and of seeking rather to put up a plain tablet rightly before we do more. The age has much to learn in humbleness of endeavour if it is to flower in beauty later, remembering that such monuments are offered to the dead, and are not intended to purchase reputations for designers.

Disappearing London. IT is a somewhat melancholy business to record the lost opportunities of London as they come up for notice one by one. We give this week an illustration of the fine effect now open to Londoners for a short time of St. Magnus Church and the Monument until the new buildings on the site of the Pearl Assurance building blot it out for ever. That one of the finest opportunities for the creation of dignity and impressiveness in the heart of London has been lost around the northern approach to London Bridge cannot be doubted.

A Contented and Happy Labourer. "WHERE shall we find a really happy man?" queries Mr. Bryant Newbold in his article on "Propaganda, or Peaceful Persuasion," which appears on p. 461. He appears to have found him at Painswick, but we believe there is yet another, for on a country road recently we met a roadmender of fine physique and in the full vigour of youth, who had no wish to live in a town, was quite content with his work, and above all with his pay. Had his wages been increased since the war? Oh, yes; he had received one penny an hour more—from eightpence to ninepence—"and I don't want more; it's enough to keep me, and I'm quite happy"—and he looked it.

The Church of St. Magnus and the Monument, from London Bridge.

GENERAL NEWS.

Banwell Abbey.

Banwell Abbey, a Somerset residential property, with a private chapel and 16½ acres of grounds, which Messrs. Knight, Frank, & Rutley are to sell on October 27, has, says the *Morning Post*, records dating back to the days of King Alfred, who bestowed it on Asser, his favourite and biographer. In one of the Danish raids the original monastery was destroyed, and was rebuilt only to fall into decay. Bishop Beckington, in the fifteenth century, built an Episcopal Palace on the site of the monastery, and from its remains, and about 200 years ago, the Palace was converted into the present dwelling.

Glasgow Architectural Craftsmen's Society.

The series of lectures arranged for the session 1920–21 by the Royal Technical College Architectural Craftsmen's Society, which has now entered upon its twenty-fifth session, include Professor Charles Gourlay on "Our Priceless Heritage"; Mr. John L. Burnett on "Trees and Timber"; Mr. R. D. Brown on "Canal Construction in Canada"; Mr. Arthur Ling on "Photography as an Aid to the Study of Architecture"; Mr. Alexander B. Mitchell on "The Training of Craftsmen"; Mr. Archibald Cook on "Asphalte"; and Mr. Colin Sinclair on "Housing in the Highlands."

Housing in London.

At the meeting of the London County Council last week a report presented by the Housing Committee stated that the number of houses completed under the Council's housing scheme was 165, of which 126 were on the Old Oak Estate and 39 on the Norbury Estate. Mr. P. A. Harris said the report of 18 months' housing work was not satisfactory. The Committee emphasised the fact that progress was being seriously delayed owing to the shortage of labour, especially bricklayers, of whom about 120 more were required on the Old Oak, Norbury and Roehampton estates. Lord Eustace Percy said that much time had been occupied in preliminaries, which were now settled, and he believed that the work would now be proceeded with vigorously. The minutes were confirmed.

London University Site.

At a special meeting of the Education Committee of the London County Council on Monday last, it was decided to approve the recommendation of the sub-committee to make a building grant to the University of London should that body accept the Bloomsbury site. Sir Cyril Jackson strongly opposed the proposal. In its report the Sub-Committee stated:—The University, in accepting the offer of the Government, would give up inadequate accommodation occupying two sites of approximately two acres, and would receive instead a site of eleven acres and a half, together with a sum representing the fair value of the King's College building, and would also have a clear expectation of receiving, through the University Grants Committtee, assistance towards the erection of the necessary buildings on the new site, provided always that adequate contributions are secured from municipal and private sources.

Hours of Labour.

In reply to a question by Major Harry Barnes, Mr. Bonar Law stated in the House of Commons on Tuesday last that he hoped it would be possible to proceed with the Bill regulating hours of labour in industry during the present session.

Inquiry.

A correspondent would like to know of any method for working mouldings on asbestos, as used for lining wood structures, roofing tiles, &c.

COMPETITION NEWS.

Frodsham.

FOR THE WAR MEMORIAL COMMITTEE.—Designs for a war memorial. Sending-in day, October 30. (See our issue for October 1.)

Brechin.

FOR THE WAR MEMORIAL COMMITTEE.—Designs for a war memorial, at a cost not exceeding £1,500. Sending-in day November 1. Further particulars from Mr. T. M. Guthrie, Royal Bank of Scotland, Brechin.

Lockerbie.

FOR THE WAR MEMORIAL COMMITTEE.—Designs for a war memorial, to cost £2,000. Sending-in day, January 31, 1921. Further particulars from Mr. David McJerrow, Town Clerk, Lockerbie. The ban of the R.I.B.A. Competitions Committee has now been removed from this competition,

Public House Competition.

FOR THE WORSHIPFUL COMPANY OF BREWERS.—Designs for an improved public house. Sending-in day, January 31, 1921. (See our issue for October 1.)

Village Sign Competition.

The premiums in the Village Sign Competition, for which Sir Aston Webb, P.R.A., and Mr. Frank Brangwyn were the assessors, have been awarded as follows:—

First Premium (£1,000).—Mr. Percy G. Matthews, 27, Norlington-road, Leytonstone.

Second Premium (£500).—Mr. Geoffrey Webb, Sackville House, East Grinstead.

Third Premium (£200).—Miss Dorothy Hutton, 181, King's-road, Chelsea.

Fourth Premium (£100).—Mr. E. P. E. Nash, Baernhurst, Talbot-rd., Winton, Bournemouth.

Premiums of £50 each were awarded to Messrs. Cecil Lay (Leiston), J. M. Doran (Earl's Court), C. W. Fenton (Beckenham), T. A. Cook (Hanwell), C. G. Ambler (Oxford), and W. H. R. Blacking and C. Webb (Guildford) (joint work). A special premium of £100 for a sign for the *Daily Mail* village was awarded to Mr. G. R. Franklin (Birmingham).

A review of the drawings submitted and illustrations of the first four premiated designs are given on page 455.

Gateshead.

FOR THE WAR MEMORIAL COMMITTEE.—Designs for a cenotaph in grey granite. Approximate cost, £4,500. Sending-in day, December 1. Further particulars from Mr. George Gill, West-street, Gateshead. The Competitions Committee of the Royal Institute of British Architects call attention to the fact that the conditions of this competition are unsatisfactory, and advises members to take no part in it until the conditions have been revised.

Liege.

FOR THE PROVINCE AND TOWN OF LIEGE.—Designs for a war memorial. Sending-in day, December 1. (See our issue for October 1.)

Glasgow.

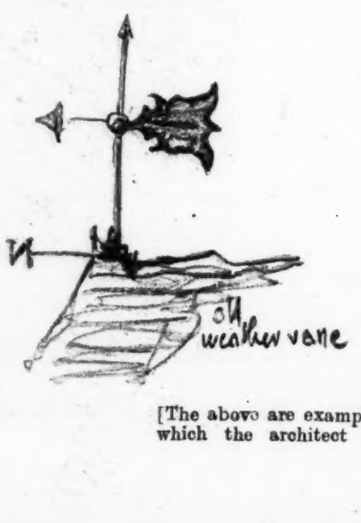
FOR THE CORPORATION.—Designs for a high school. Sending-in day November 15. (See our issue for October 1.)

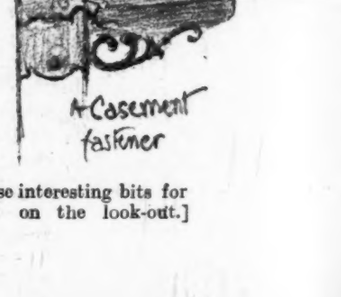
THE GLENELG MEMORIAL.

BY the munificence of Lady Scott this memorial to the men from Glenelg who gave their lives in the great war is now completed, in spite of the many difficulties that were encountered in getting a large and heavy bronze group of three figures transported from London and landed at Glenelg, where there is no pier or other facilities.

The memorial occupies a fine and prominent site overlooking the Sound of Sleat, with the dark, rugged mountains of Skye wreathed in ever-moving mists forming a wild and picturesque background of exceptional grandeur, and in impressive harmony with the historical warlike traditions of the Cameron country, which has always been first to offer its sword and service to King and country, and whose chief is a worthy descendant of the famous Lochiel of '45. The bronze group is placed on a stone pedestal, simple and dignified in design, and in harmony with its rugged environment; the whole *ensemble* forming a conspicuous landmark, rising some 18ft. above the road level and an object of interest to the numerous tourist steamers passing through the narrow sound separating Glenelg from the Isle of Skye. The bronze group is one of the largest ever erected in the Western Highlands, and consists of three colossal figures symbolical of the great war—a typical Cameron Highlander stands on guard in a dignified pose in full fighting kit with both hands resting on the barrel of his rifle, at ease, while a kneeling female figure mutely appeals to the winged figure of Peace bearing aloft with right arm extended a bronze wreath. The total height of the bronze group is 10ft. It was modelled by Mr. Louis R. Deuchars, and is an impressive composition. The inscription panel in bronze is placed on the face of the pedestal fronting the road and consists of inscription and names in bold lettering in relief.

The memorial has been carried out from the designs of Sir Robert Lorimer, A.R.A., F.R.I.B.A., architect. The pedestal has been erected by Messrs. Maclean & Son, builders, of Inverness, and the colossal group of figures, as already stated, has been modelled by Mr. L. R. Deuchars and cast in bronze by the Albion Art Foundry, Ltd., of Parsons Green, London, under the personal supervision of Mr. J. F. Carruthers Bell, who also directed the erection and fitting together of the group at Glenelg.





[The above are examples of those interesting bits for which the architect is always on the look-out.]

CORRESPONDENCE.

Westminster Abbey.

Sir,—With reference to the proposed repairs to the Abbey, allow me to say how heartily I sympathise with the scheme, but at the same time I am anxious to combat a rumour which I am afraid is very prevalent, namely, that it is proposed to spend a certain amount on repairs to the Canons' residences in the Little Cloisters. It has also been suggested that the amount asked for by the Dean and Chapter is out of all proportion to the work which is necessary. The amount of £250,000, if collected, would produce an income if invested of at least £12,500 per annum, which is far in excess of the annual expenditure of any of our Cathedrals. If the amount of £50,000 were spent on the necessary repairs, it would probably not require more than £1,000 per annum to keep the structure in good order.

It may be urged that the cost of building has gone up enormously, but this would not invalidate my argument. The North Transept was, as we all know, admirably restored some years ago by Pearson, so that no repairs should be necessary to that portion of the building.

We shall all be glad to see our venerable Abbey put into a thorough state of repair, but some safeguards should, I think, be taken to ensure the money being properly spent.

"Architect."

The Arts Club.

"M.S.A." and "M.O."

Sir,—Mr. Percy Bartlett, like many other members of the Society, has a double right to the suffix "M.S.A.," as he is also a "Military Service Architect." The essence of his communication is that medical men have a legal status and architects have not, consequently the former are recognised by the Government and the latter are not. For 36 years the Society has advocated the statutory registration of architects, and as it took the doctors 40 years to overcome the prejudices and opposition from within their own profession and to obtain their Charter, the Society is well within record in having consolidated professional opinion on the registration question to an extent which led up to the formation of the Unification Committee, constituted for the purpose, *inter alia*, of accomplishing Statutory Registration.

In regard to the re-establishment of architects after the war, the Society has done, and is doing, all in its power to secure that, other things being equal, preference for architectural appointments of all kinds, including housing, should be given to qualified ex-Service men. In this connection one of the greatest compliments paid to the successful activities of the Society was a complaint made by a prominent member of another professional body who expressed the opinion that the Society was guilty of unprofessional conduct in endeavouring to secure so great a share of the national housing work for its members. Every housing authority in the kingdom has had an opportunity of learning the views of the Society on this subject, which have also the sympathy of the Minister of Health. Sir Kingsley Wood, M.P., the Parliamentary Secretary of the Ministry of Health, has recently stated in the columns of a contemporary that the "national housing scheme has given to trained architects a larger share of this work than at any time in the history of this great profession." What proportion of these architects so engaged are ex-Service men is not revealed. I also see a statement in another publication that the Ministry of Agriculture and other public bodies are now taking steps to secure the appointment of architects in every town and village so that the local authority can have the benefit of the best professional advice, to enable it to obtain the best results when carrying out the erection of new buildings and when considering plans and other proposals put forward for the building of new houses and commercial works and factories.

It would seem from all this that the architect is beginning to come into his own, and that the efforts of architectural bodies have not been entirely in vain. I know exactly what Mr. Bartlett and others similarly situated feel, and how hopeless it all seems sometimes, but as Mr. Bartlett has drawn a comparison between the activities and powers of the medical profession and those of architects, I think it opportune to point out that the pioneers of reform in the medical profession have passed through exactly the same experiences as those in the architectural profession are now doing before obtaining their charter, and I have not the least doubt that history will repeat itself and that the Society of Architects will eventually by some means or other attain its main object, viz.:—The statutory registration of architects. In this connection it is interesting to note the letter in your columns from the Secretary of the Building Surveyors' and Inspectors' Association, who states that the cardinal object of the body which he represents is the improvement of professional status, and that they resent the unqualified (so-called) architect.

C. McArthur Butler,
Secretary of the Society of Architects.

Building Surveyors' and Inspectors' Association.

Sir,—I have read Mr. Warwick's letter with interest, but there are one or two points that I think need further reference. Mr. Warwick assumes that members of the Architects' and Surveyors' Assistants' Professional Union must be almost exclusively engaged in private practice. Such is far from being the case, the composition of the Union being fairly evenly balanced between officially and privately employed members; and we are going to do as much for the one class as for the other—that is, as much as we possibly can for all. We believe that we shall be in a position soon by sheer solidity to achieve more for any particular member or class of members than any mixed organisation.

I welcome Mr. Warwick's hope that our two Associations may work together; but, at the same time, I would point out that so-called "working together" is not sufficient, *e.g.*, the "working together" of the R.I.B.A. and the Society of Architects, each of which bodies now clearly sees the dire necessity for something much closer. The world of professional building workers, comprising architects, surveyors and building office staffs, is so small that it cannot afford to be split in any way whatever; complete unity is essential as to the economic conditions of their business life.

From Mr. Warwick's letter, it is also to be inferred that not all his Association's membership is employed by local government authorities—a fact which makes me rather inclined to ask whether it is fair, therefore, to affiliate the whole body to an organisation exclusively dealing with local government service. A general craft organisation such as ours can deal with all sorts and conditions of employees, whereas an organisation of purely local government employees would be *ultra vires* in acting for Government or privately employed persons.

There is one point in Mr. Warwick's letter the context of which is completely beyond me. He writes: "It has been rumoured that the scale of salaries put forward by my Association is an improvement on those put forward by other professional bodies; I do not suggest that this is the reason for Mr. McLachlan's letter, but the point is of interest." I must apologise to Mr. Warwick that I do not see the point at all. This is the first intimation any of us have had that his Association has put forward a scale of salaries, but we are glad to hear it; our own scale has not been published, so likewise Mr. Warwick cannot know that we are asking less than his Association is asking.

To conclude, from the beginning of his professional life to the end of it, an architect, surveyor, or other building supervisory worker, is always such, but his employers are always changing; he is an architect, surveyor, &c., first—a civil servant, local government officer, railway or other employee after. The A.S.A.P.U. will remain his organisation throughout all these changes; it is a union, a body of members of different but allied professions; a union of persons who the more they learn of their allied professional workers the more they respect them and stick to their own; a union of allied professional employees, working not together as usually understood but as one.

Chas. McLachlan,
Hon. General Secretary, A.&S.A.P.U.
33, Tothill-street, S.W. 1.

Association of Licentiates.

Sir,—As no doubt you are aware, the above Association has been formed, with enthusiastic support from many quarters. The Executive Committee appeals to all Licentiates to join the Association, and to those in the provinces to form local committees to discuss the question of unification, and delegate one of their members to keep in touch with the Executive.

Six districts, outside London, are represented on the Executive, and it is hoped that every centre in Great Britain will be able to form a local committee, so that by correspondence the executive may be informed on all matters affecting the position of architects, and the advantages to be derived by unification of the profession, at the same time being informed with regard to the necessary safeguards to be taken to assure the proper protection of Licentiates and others who are not at present corporate members of the R.I.B.A.

It has been brought to the knowledge of the Executive Committee that there is a wide feeling that the question of unification has been taken up by the R.I.B.A. where it was dropped in 1914, and the Committee is anxious to assure members that this is not the case.

The Committee is convinced that at the present time there is a general belief in unification as a means to the advancement of architecture, which will benefit the architect of the future, and that the old idea of "sheep and goats" has given way to an ideal which is wide enough to embrace all those who are devoted to the art and craft of architecture and building.

Licentiates have been invited by the Council of the R.I.B.A. to take their part in the organisation of the whole profession, and the Association has been formed that we may give of our best for the general benefit. To do this effectively, it is necessary to obtain the views of some 1,750 Licentiates living in all parts of the country, and this is possible through local committees in touch with the central Executive, if we have the full support of the whole Licentiate class.

The Committee prefers to "let the dead past bury its dead" and to take up the question of unification as it stands at present; those who have followed the reports of the meetings held at the R.I.B.A. do not need to be reminded that the present Unification Committee is formed of representatives of Fellows, Associates and Licentiates of the R.I.B.A., the A.A., members of the Society of Architects and of unattached architects; therefore the Committee is really representative of all architects, if each section is representative of those they are elected to serve.

The meeting held on September 17 endorsing the election of Licentiates' representatives and approving the action taken between May and September, the forming of the Association, and the enthusiastic support already given, make it abundantly clear that the Licentiate members of the Unification Committee do in fact truly represent the whole body of Licentiates, and the Executive Committee is now anxious to give them all the help in its power that they may well and truly serve on the Committee, and that their views may be received as the expression of opinion of a large body of experienced men, and not only of a few individuals.

Licentiates are invited to join the Association (subscription 5s.) and communicate with the Secretary. Reports will appear from time to time in R.I.B.A. *Journal* and the Press.

J. E. Yerbury, *Chairman*, Lic. R.I.B.A.
S. G. Short, *Hon. Sec.*, Licentiate R.I.B.A.
L. S. Youngman, *Assist. Hon. Sec.*, Licentiate R.I.B.A.

SOME ECONOMIES IN SCHOOL CONSTRUCTION.—I.

THE following is the first of two articles on school construction, by Messrs. Percy E. Nobbs, M.A., F.R.I.B.A., A.R.C.A. (Professor of Architecture, McGill University), and George E. Hyde, B.Sc., architects, of Montreal, which are of considerable interest. The articles have appeared in the *Architectural Forum*:—

Introductory.

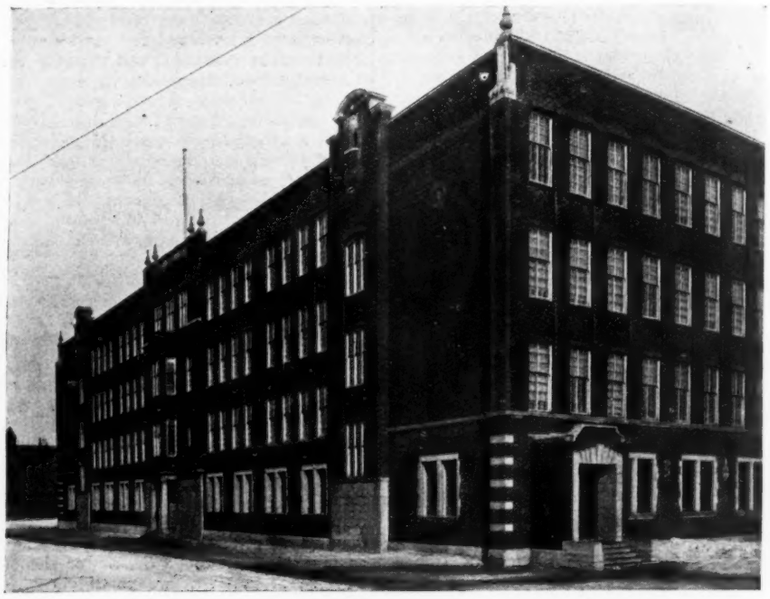
At a time when much delayed building of an essential kind must be constructed in spite of what may be called artificial additions to cost due to the loss of purchasing power of money, and actual additions to cost due to a short-weight hour in a shortened day, some economies in school construction may be found of interest. The following notes are derived from a series of schools built for the Protestant Board of School Commissioners of Montreal between the years 1911 and 1915.

The officials very rightly insist that there should be no door in the wall behind the teacher, but a blackboard the whole width of the room. Another blackboard is placed on the inner wall (opposite the windows) between the entrance door and the cupboard, which is preferably in that wall. The back wall is provided with rails only for diagrams. The dimensions of the class-rooms are, maximum, 25 by 30 ft., to minimum, 24 by 28 ft. The usual height is 12 ft. 10 ins., floor to ceiling. The window sills are 3 ft. high, and the glass area is one-sixth of the floor area—a rather excessive requirement. These school buildings are thoroughly fireproof in their construction. The fuel and heating apparatus are disconnected as far as possible from the ground floor, from which the stairs lead up. There is no basement, the space below the ground floor being filled in, except for ventilating ducts and pipe tunnels. Where internal concrete staircases can be suitably distributed throughout the building, external fire escapes are omitted.

For some years before the war the increase in land values in districts where new school buildings were required and the increase in the cost of building have been such that rigid economy had to be exercised, both in construction and planning, to secure the necessary accommodation within estimates based on the past undertakings of the Board. This situation has led to the omission of two elements formerly held to be essential in a well designed school: (1) Large playgrounds for both boys and girls, and (2) assembly rooms. To offset this loss the indoor playrooms, essential in this part of Canada, were greatly improved, and the gymnasiums were arranged and located so as to serve on occasions as assembly rooms.

A Sliding Front Locker.

In 1913 the possession of a very restricted site at a point where a school of large capacity was required, caused the Board to adopt a plan which discarded the time-honoured coat rooms, substituting therefor steel lockers placed in the corridors, which were made 2 ft. wider to allow for this additional tax on their capacity. This arrangement did not at first give complete satisfaction. The defects observed, however, were due, not to combination of locker room and corridor, but to structural errors in the locker itself. In the following year the only building erected by the Commissioners was an addition planned with lockers in corridors serving a few of the class rooms only; those, in fact, for which it was found difficult to find coat room space. While this installation was pending, the architects secured an 8 ft. unit section of the lockers and placed it in their offices for the use of their draftsmen to store their hats and coats. The men were enjoined to handle the contrivance with the least possible care. Under the resulting service conditions, defects soon appeared and provision was made to remedy them and prevent their reappearance with the result that by the time the lockers were required at the school in question a very different and more durable fitting had been produced. The locker room and corridor combination, as revised, met with the approval of the principals concerned with school management, and of the officials who had charge of the buildings and fittings.



Bancroft School for Protestant Board of School Commissioners, Montreal.
MESSRS. NOBBS & HYDE, Architects.

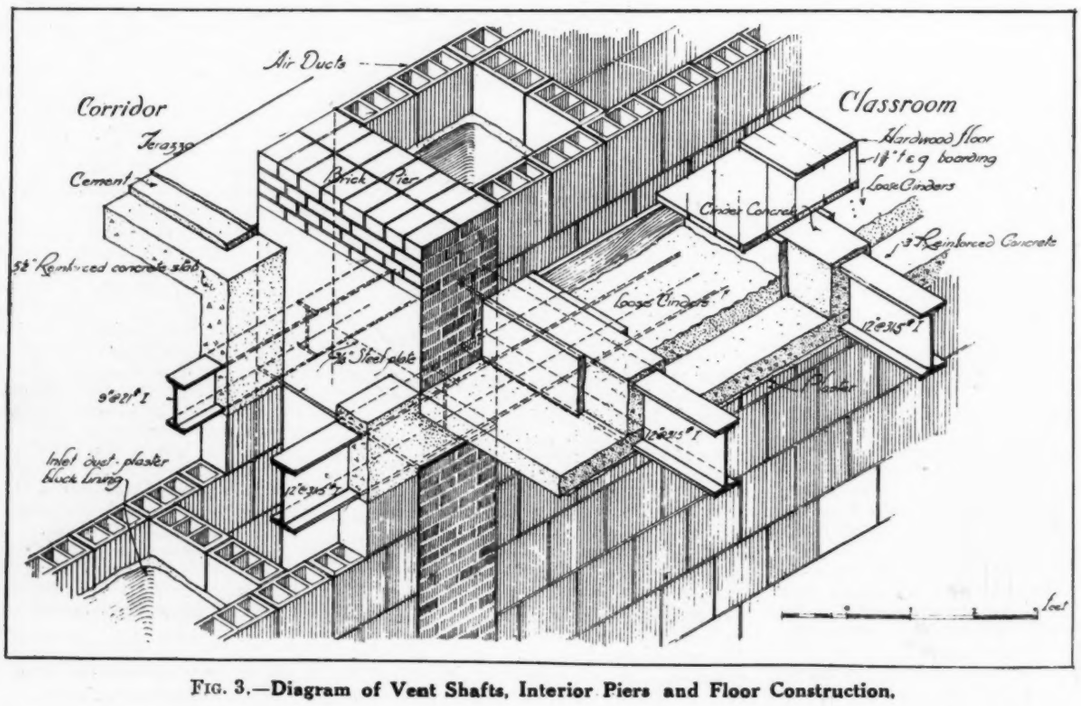


FIG. 3.—**Diagram of Vent Shafts, Interior Piers and Floor Construction.**

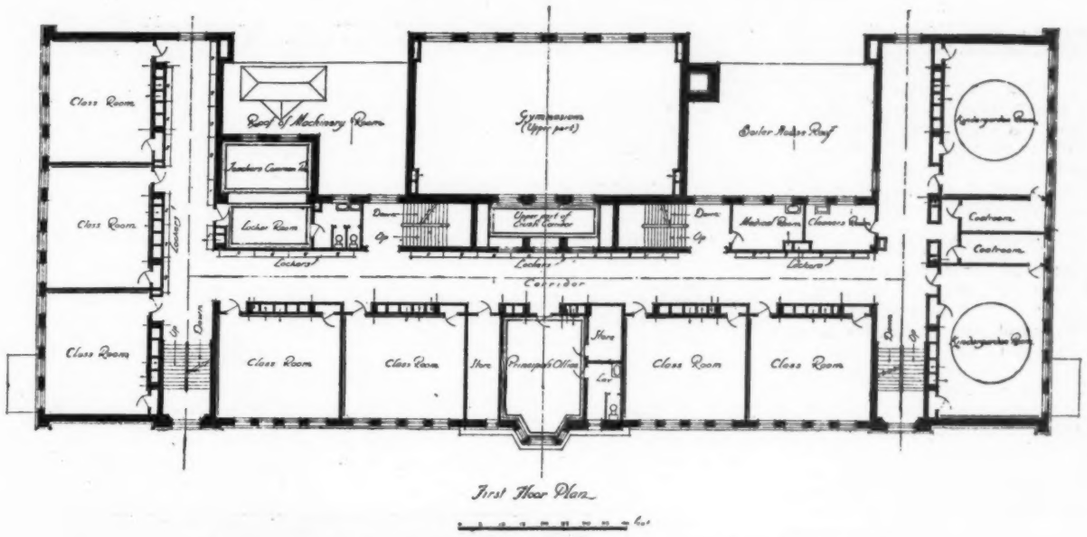


FIG. 2.—**Plan showing Corridor arrangement, Bancroft School, Montreal.**

Late in 1914, the architects were instructed to prepare plans for a new school to contain 33 class rooms, and after very careful consideration it was decided to omit all coat rooms and rely entirely upon lockers in the corridors for the storage of the pupils' clothing.

Fig. 1 illustrates the design and location of the locker unit. The body is made of 18-gauge steel, reinforced with L and T ribs or bent steel sections. Each section is 8 ft. long and serves twelve pupils. The front consists of eight 12-in. sections, four of which are fixed panels and four are connected to a frame which has a lateral movement of 12 ins., facilitated by means of a ball race. On opening the fitting, the sliding and fixed panels come opposite to each other and four spaces of 12 ins. each give access to the coat hooks for three pupils. A small but very important detail is that the lateral movement of the locker front is stopped 1 in. short of its full opening (or closing) by a dog, and the last inch is covered at slow speed by a controlled movement. This device serves effectively to prevent damage to the hands of children using the lockers. The locker bottom is formed in wire mesh and the fronts are perforated for ventilation. There are no partitions throughout each unit, the wall of the building forming the locker back. Four 8-ft. units are assigned to each class-room, giving capacity for the clothing of forty-eight pupils, and the teacher holds the key which opens or closes the four sections assigned to her class. The use, in Montreal, of lockers in place of coat rooms puts the most severe test possible on the system, in that the climate necessitates the storage of a maximum amount of clothing for a very large part of the school year. The school board officials frankly admit that costs being equal they would prefer schools planned on the old coat room principle. They consider, however, that the advantages of the coat room are not so great as would at first appear. One advantage of using lockers is that the pupils gather in the wide corridors instead of in the necessarily confined coat rooms; then, again, as the teacher must be present to operate the locker fronts, the pupils are necessarily under supervision.

An Economic Floor Construction.

In the earlier of the series of school buildings under consideration, no attempt was made to depart from the usual types of construction in fireproof buildings. Preference, however, was given to flat ceiling systems in reinforced concrete either involving a thick, heavily reinforced slab over the 25 ft. class-room span, or steel or terra-cotta cores in a concrete joist construction. The flat finished ceiling was considered an essential feature, as it provided, firstly, elasticity in locating the transverse partitions, and secondly, a plain surface offering no check to the proper diffusion of the forced ventilation. When beams are used for the 25 ft. class-room span with normal slab sizes, it means either leaving the beams exposed or resorting to a furred down ceiling, with increase in cost and addition to time of construction. It was felt by the architects that there were certain objections of one kind or another to all the systems of construction so far employed, and they decided to try an adaptation of a very old method of fireproofing in the case of some additions to an existing school. This might be termed a "steel joist" construction.

A study of the floor plan (Fig. 2) will show that the class-rooms in all cases are bounded by an external wall on one side and stacks of ventilation ducts on the other. The width required to construct these ducts is 3 ft., but they need not occupy more than half the space available in a longitudinal direction, and the rest is occupied by piers, class-room cupboards and entrances. The 3 ft. dimension of the ducts is larger than is required for a reinforced concrete or steel column, and it was found that with the use of brick, laid in cement, a pier of ample strength was economic.

Fig. 3 shows the system of construction used for several recent school buildings in Montreal. The piers are located at 15-foot. centres, and I beams are used as stringers, one on each side of the pier. A $\frac{1}{2}$ in. steel bearing plate with bond holes extends over the whole pier area as a template for the stringer beams. The "steel joists" span the 25 ft. between these stringer beams and the external walls. They are laid on the stringers and they are built into the wall. It was found that 12-in. I's at 31$\frac{1}{2}$ lbs. spaced 3 ft. 9 ins. centre to centre would support the combined live and dead load of 125 lbs. per sq. ft. over the 25 ft. span. The dimension, 3 ft. 9 ins., fitted in well with the plan, as it gave two beams to each window bay and allowed the use of a self-supporting sub floor of 1$\frac{3}{8}$ in. spruce.

A slab of broken stone concrete, 4 ins. thick, envelops the bottom flanges of the "steel joists" and is reinforced with steel rods in two directions. After the concrete slab is poured, $\frac{7}{8}$ in. boards are placed on edge on each side of the steel joists as centering for the fireproofing of the beams. This fireproofing in cinder concrete is carried to a level 2 ins. above the

FIG. 1.—**Corridor in the Bancroft School showing Locker Units.**

top flanges of the beams. The centering is left in place to form a nailing base for the sub-floors of 1¾ in. stuff. Tamped cinders to a depth of 3 in. are then added on top of the concrete slab between the fireproofed joists, as sound-proofing material. The I beams on which the steel joists rest are fireproofed with at least 2 in. of concrete. The construction throughout the corridor is a concrete slab 5½ in. thick.

Important points in favour of this combination of steel and concrete may be noted:

(1) All the steel employed in this system of flooring is unfabricated. It may be ordered cut to lengths direct from the mills and delivered at the site. This economic advantage is self-evident. In the case of the last school constructed, it amounted to about $35 per ton—shipping and customs duties being serious items.

(2) The steel units are comparatively light and may be erected quickly and with the minimum of plant. The gain in time saved through the absence of fabricating operations is also important.

(3) The brick piers can be built quickly (only 1,400 bricks in each to a story) and when in place they serve conveniently as a basis for the form construction of the next floor.

(4) The centering for the slabs is of the simplest, may be very light and can be re-used again and again. No struts are required, as the centres are wired to the steel joists.

(5) There being a flat concrete ceiling throughout, no metal furring or lathing is required and the only plastering necessary is one thin finish coat. It must be confessed that the architects at first employed this single finishing coat on a concrete base with some misgiving, but having had no trouble in this connection in the case of a number of schools, they consider the method entirely sound. The greatest care, however, must be taken to have the cement surfaces absolutely free from dust or dirt of any kind and to keep them as wet as possible before the plaster is applied.

(6) Economies aside, a practical advantage is to be found in the fact that the fireproof slab is placed where it can do most good enveloping the bottom flanges of the steel.

(7) The heavy under floor which takes the place of the ordinary ⅞ in. sub-floor and sleepers does not increase the amount of wood employed. It also forms a really substantia base for nailing the ⅞ in. birch finished flooring

(To be concluded.)

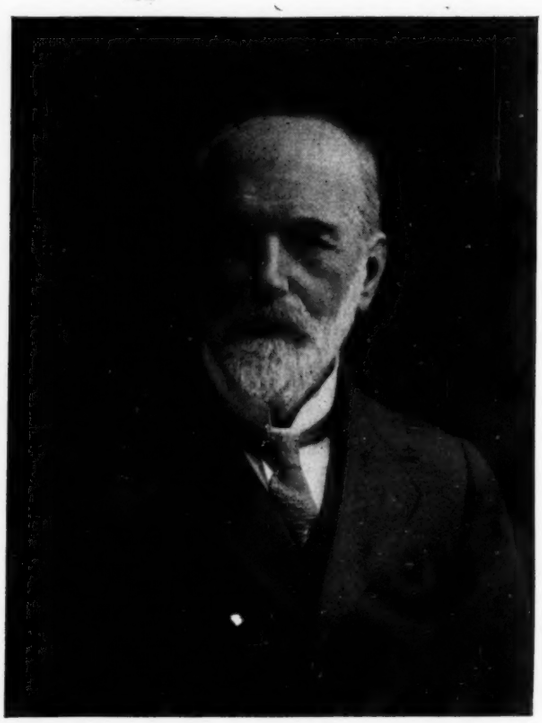
THE ARCHITECTURAL ASSOCIATION.

During the current session there will be a departure from the usual procedure at the general meetings of the Architectural Association. These meetings will now be held on the ground floor, and will be preceded by dinner served at 7 p.m. The general meetings for the session include the following:—Monday, October 25, an informal talk by Sir Edwin L. Lutyens, A.R.A.; Monday, November 22, Major H. Barnes, M.P. (subject to be chosen); Monday, December 20, Mr. Robert Atkinson, F.R.I.B.A., on "The Architect as a Collector and Connoisseur"; Monday, January 24, Mr. Percy A. Wells on "Modern Furniture Design and Decoration"; Monday, February 21, Mr. H. Gordon Selfridge on "Architecture and Commerce"; Monday, April 25, Sir Lawrence Weaver, K.B.E., on "Rural Cottages: Common Sense and Architecture"; Monday, May 30, Mr. G. K. Chesterton on "A Layman's View of Architects and Architecture." Monthly exhibitions will be held as follows:—October 25, Sketches and Water-colours, by Instructors in A.A. Schools; November 22, drawings by the late Alick Horsnell; December 20, drawings by the late Gerald Horsley and the late Temple Moore; January 24, Exhibition of Sculpture; February 21, Exhibition of Textiles; March 21, Interior Decoration; April 25, Stage Settings; May 30, Metal Work.

THE LATE T. L. WATSON.

We regret to have to record the death on the 12th inst., in his seventieth year, of the well-known Glasgow architect, Mr. T. L. Watson, who for more than thirty years has been amongst the foremost to uphold the quality of architecture and the professional status. He was not only keenly alive to the fine qualities of architectural expression, but he was an able writer on professional topics, as his admirable monograph on Glasgow Cathedral and a considerable output of articles on professional matters showed. He was a man of clear judgment and generous in his views of others, whilst he was well read and sensitive to all literary and artistic affairs; he was, in fact, possessed in an unusual degree of that catholicity of outlook which is of such great importance to the architect. Those who knew him intimately will deeply regret his loss. Up to a month ago he was actively engaged in a very interesting attempt to solve some of the difficulties of the housing problem. Mr. Watson was often engaged in the design of yacht furnishing in connection with his cousin, the noted yacht architect. His practice as an architect must have covered a large and varied range of buildings, some of which were well in the public eye, like the excellent Renaissance structure which houses the *Glasgow Citizen*, the Wellington Church, the Philosophical Society building, and large business premises in Sauchiehall-street. The profession of architecture has had in Glasgow many able members who have been in the front rank, but none have more worthily given of their best than the late Thomas Lennox Watson.

Mr. Watson was a grandson of Dr. George Watson, a leading physician and surgeon of his day. He received his early training at the High School and the School of Art in Glasgow, and from boyhood his proficiency in mathematics and drawing suggested an architectural career; and his life has proved the choice, for he was a student of architecture to the last, whilst he had a cultivated taste for literature. After his early training in Glasgow, he became assistant in London to the late Alfred Waterhouse, with whom he had the advantage of working on several of the most important public buildings in England. Later, in Glasgow, he established an extensive practice in churches, schools, public buildings, country houses, sumptuous yacht interiors, and other decorative schemes. He had been a Fellow of the R.I.B.A. from 1884 and served some time on its Council. He has been President of the Glasgow Institute of Architects; Hon. President of the Glasgow Architectural Association; and President of the Architectural Section of the Royal Philosophical Society of Glasgow. He was a governor of the Glasgow and West of Scotland Technical College. His literary work is recounted in "Who's Who" as follows: "In 1901, he published 'The Double Choir of Glasgow Cathedral,' in which, by means of an analysis of the vaulting and other architectural features of the building, the history of the structure is unfolded and its peculiar and exceptional method of construction illustrated; certain changes of intention on the part of the designer are also brought to light, and the earlier and discarded plan of the vaulting is recovered. He is, besides, the author of pamphlets on 'Fire Prevention,' 'The Acoustics of Public Buildings,' and other subjects." A later pamphlet dealt with the need for improved cross-river communication by means of a new high level bridge in the west-end of Glasgow. This brochure he entitled "The Freedom of the City," as he claimed that the economy of time, labour and money to be effected would almost confer a new charter on the city. Though he has passed away without witnessing the realisation of this long-advocated improvement, the rising generation, with its quickened sense of the practical and the essential, will doubtless acknowledge his foresight and wisdom. The scheme was illustrated in our pages. To relieve the difficulties of the pressing housing problem, he lately devised and patented a process whereby cottages and workmen's dwellings might be erected with enormous saving of time and labour. Mr. Watson was an occasional contributor to our pages and we greatly regret his loss.



The late T. L. Watson.

VILLAGE SIGNS COMPETITION.

The interest aroused in the subject of village signs by the Duke of York will be a good deal augmented by the competition for designs initiated by the *Daily Mail*. A large number of these are now on view at Australia House and they illustrate very graphically what a variety of treatment the subject suggests. The bulk of the designs are, of course, more or less unsatisfactory in treatment and proportion, often in both, but if there are not so many good designs as one might have hoped for, there are enough to justify a visit of careful inspection. We should imagine all good judges will agree that the premiums have been worthily awarded. The first premiated (£1,000) design, by Mr. P. G. Matthews is broad and simple in treatment and so far is in contrast with the large amount of fussiness which prevails amongst others. The figure of St. Peter holding two keys is good, and would probably be none the worse if painted in a brighter tone of colour for better realisation in our dull climate. A charming little colour sketch indicates its setting in the village. The cost is estimated at about £300.

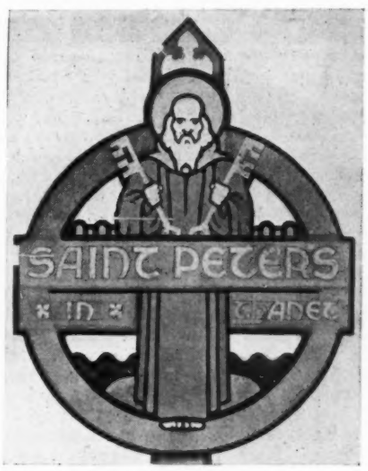
The second premiated (£500) design, by Mr. Geoffrey Webb, is likely to be more attractive to the general public, for its treatment is in a lighter vein. It is for the village of Mayfield, and may and maidens are combined in pleasantly-arranged swags which will silhouette well against a light background. In form and colour the design is alike excellent.

The third premiated (£200) design, by Miss Dorothy Hutton, is for Battle, and a conventional decorative picture of an ancient battle is shown on one side of the sign and William the Conqueror's arms on the other. This is painted in a bright key of colour and the form of the wood frame and post is very good.

We may hope that the result of this competition will be that several good village signs will now be erected. We feel sure local authorities will be only too ready to provide sites, possibly the cost of the sign too, though this may often be the gift of private individuals. It is surprising how many villages one may travel through in an unfamiliar part of the country without knowing their names; surely it is only reasonable that in some conspicuous place the name of a village should be displayed. We may even hope for the time when a traveller in the streets of London will actually find the name of every street displayed at its junction with every other street and the number of every house or shop also properly displayed! The Art Committee of the R.I.B.A. worked at this very useful matter some years ago, but London is still a benighted city in this respect.

One function of a sign post may well be to provide a seat as well; in many of the designs this is done, and in one design for Addlestone a lantern light is very happily incorporated. This is one of the best designs shown; it has good character and is charmingly drawn.

The value of village signs as a factor in our daily life could hardly be better expressed than in the words of the Duke of York, who, speaking at the opening of the exhibition, said "they were both beautiful and useful. One could see here history, artistically expressed and tradition pictorially displayed. These attributes alone would justify the placing of these signs in the districts to which they related. But in addition we can claim the practical benefit of serving to let the incidental traveller know the name of the village through which he is passing, or in which he is resting, and both pedestrians and motorists will realise what a great boon that will confer on the travelling community. It has given me great pleasure to learn that several far-seeing and public-spirited local authorities, in accordance with the terms of the competition that a site should be provided for the prize winning signs, have agreed to do so in the most cordial and, may I say, sporting spirit, without having even inspected the signs.



Design placed first. By Mr. Percy G. Matthews.

This gives me courage to suggest that the other local authorities concerned, the legitimate guardians of historical records, might also consent to the erection of the numerous signs in this Exhibition, which, although not gaining prize awards, yet display great ingenuity, beauty and merit, and cannot fail to add by their decoration a benefit, which is at once decorative and practical."

Design placed third. By Miss Dorothy Hutton.

The National Gallery.

The Rooms II and XXIX at the National Gallery were re-opened to the public on Wednesday, October 20. Room II contains works of fifteenth-century Venice, Padua and Verona, while Room XXIX contains sixteenth-century work from Venice, Brescia and Bergamo.

Building Material Conference.

It is reported that a resolution was adopted at a conference on the shortage of building material, held in Glasgow last week, to the effect that the arrangements and machinery set up by the Government with regard to the supply of materials for the prosecution of State-aided housing schemes were wholly inadequate and unsatisfactory, and calling upon the Government to review its present arrangements, and alter them so as to ensure that adequate measures would at once be adopted for the earlier provision of houses.

Design placed second. By Mr. Geoffrey Webb.

MEETINGS.

Friday, *October* 22.

Architectural Craftsmen's Society.—Prof. C. Gourlay, A.R.I.B.A., on "Our Priceless Heritage." At Royal Technical College, Glasgow. 7.45 p.m.

Monday, *October* 25.

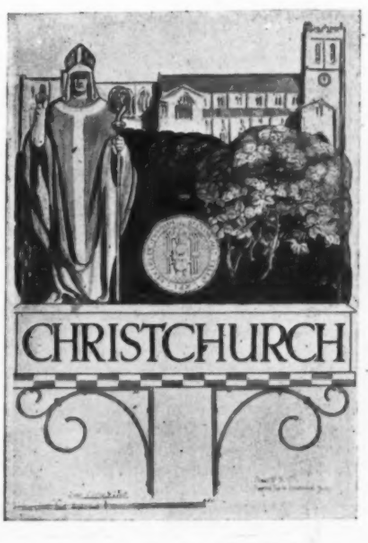
Architectural Association.—Exhibition of Watercolours and Sketches, by the Instructors in A.A. Schools. At 34–35, Bedford-square. 10 a.m. to 10 p.m. An informal Talk by Sir Edwin L. Lutyens, R.A. At 34–35, Bedford-square, W.C. 7 p.m.

Wednesday, *October* 27.

Institute of British Decorators.—General Council Meeting, At Painters' Hall, E.C.4. 3 p.m.

Wednesday, *October* 27.

British Museum Lectures on Ancient Architecture.—Sir Banister Fletcher on "Asiatic Architecture, B.C. 400–B.C. 333." At British Museum. 4.30 p.m.



Design placed fourth. By Mr. Eustace P. Nash.

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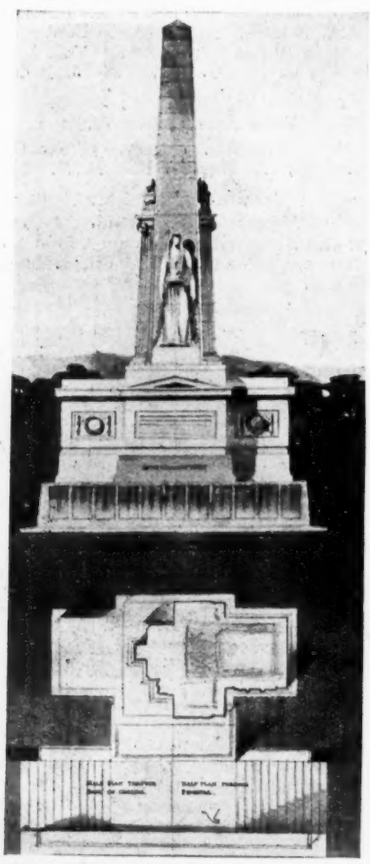
ILLUSTRATIONS.

Design for the Krishna Raja Hall.

The design for the Krishna Raja Hall (the Senate Hall of the Mysore University), by Mr. S. H. Lakshmi Narasappa, B.A., B.E., B.Arch. (Liverpool), has been accepted by the Government of His Highness the Maharaja of Mysore in an open competition. The author's report states that the hall, which is primarily intended as a Senate House and Examination Hall for the recently constituted University of Mysore, has also to be made available for the use of the Representative Assembly, whose 500 members meet twice a year to debate on matters of state.

It is proposed to construct the hall in the centre of the open ground to the west of the oval in the Gordon part, *i.e.*, about midway between the public offices and the University Library. It will thus be the central structure of an important group of buildings, and will form an imposing landmark on the high ridge. The front of the building will be about 100 ft. distant from the West Oval-road. The hall has been designed in a style and with architectonic *motifs* similar to those of the University buildings, now nearing completion, but with the details on a larger scale; the symmetry of the exterior, a high columnar porch, the large expanse of roof and four small corner towers proclaim a public hall of national importance. The two ornamental end domes so prominent in the side elevation of the building are intended to indicate the double purpose for which the building is intended, viz., the University and the Representative Assembly. The building is in two stories, except the central hall which rises through both the floors. The hall, which measures 60 ft. by 80 ft. by 40 ft. high, has a seating capacity of about 800 on the ground floor, while the first floor, having a side balcony 7 ft. wide and an end gallery 24 ft. deep in the centre, can accommodate about 600 more. On the ground floor is the central auditorium with a stepped arrangement of seats for the members of the Assembly. The projecting dais at the southern end of the hall is made of sufficient size to contain 100 seats. The four corner towers are intended as the common rooms for the Government officers and the members of the Assembly, while the circular domed hall in the rear of the dais, and separated from the central hall by a corridor 8 ft. wide, serves as the dining hall. In the Southern wing and on both sides of the domed entrance hall are located the office rooms of the members of Government, with w.c.'s and a committee room. The dimensions of the hall have been fixed to secure the maximum scenic effect desired during the University Convocational functions, without in any way detracting from the acoustic properties of the hall. The details of the hall and the rooms are so arranged and proportioned as to secure efficient light and ventilation. Also entrance halls, corridors, passages, staircases, closets and other accessories are so apportioned as to afford a maximum of convenience with the minimum of floor space.

We are informed by the architect that: "It is proposed to use coursed rubble masonry for foundation and basement, the superstructure being of moulded bricks with machine-made bricks for columns and pillars. The flat roof will be of flush Madras Terrace, 7 in. thick, supported between rolled steel joists, the two domes also being of similar construction but with horizontal ties of steel. The roof over the main hall will be of Mangalore tile shingles, of rib pattern, supported on steel trusses. The flooring in all rooms will be cement terrazzo or hexagonal ties, but in the auditorium it will be made in steps with smooth (or rough polished) Cuddapah slabs interposed with white Shahabad slabs, the whole being laid in a slope or in steps on a suitable 'isacoustic' curve which would secure radial and full views of the dais from any part of the auditorium, while allowing an uninterrupted view of any part of the hall from any other point. Reinforced concrete will be used for the staircases, lintels of large span, the arch over the dais, and also for circular pillars in the corridors, while the pillars in the central hall which take heavy superimposed loads will be of steel encased in cement concrete. The total estimated cost of the structure, which has a plinth area of 21,710 ft. super., works out to about Rs. 3.5 lakhs, the rates allowed for various items in the estimate being based on data of actual cost as per rates for materials and labour now prevailing, the specifications for the items being the same as were approved for the recently constructed University buildings. The cost per cubic foot of the building works out to about Rs. 0–6–0, or about 9d. in English money at the current rate of exchange.',



Accrington War Memorial.
By PROFESSOR C. H. REILLY, F.R.I.B.A.

Accrington War Memorial.

The perspective drawing with the stormy sky was prepared by Professor C. H. Reilly, F.R.I.B.A., for the Accrington War Memorial, but it is the scheme with the panels for names of the fallen on the front wall (illustrated on this page) which is actually being erected. The memorial will cost about £5,000, and is to stand on the top of a hill in a public park at Accrington. As it will be some 65 ft. high, it will be a prominent object from all the hills around. It is designed to suit the rather bleak outlook of these hills, which have manufacturing towns in the valleys between them. The figure in front of the obelisk, which is 18 ft. high, is being made by Mr. Tyson Smith, the sculptor. It represents consolation and mourning rather than a rejoicing at war and victory. In front of the figure stands an altar with steps up to it, the retaining wall for which contains the name tablets of the eight hundred men who were killed from the small town of Accrington.

Accrington War Memorial.
By PROFESSOR C. H. REILLY, F.R.I.B.A.

Cottage at Chislehurst.

The gardener's cottage, at "Walsingham," Chislehurst, Kent, was built in 1910. The plan is L-shaped, and contains a parlour, kitchen, and scullery, and three bedrooms, one of which is fitted with a tip-up bath. The design was to some extent controlled by the fact of the cottage being in the garden, and in close proximity to the house. For this reason the circular-headed door leads into a small courtyard which contains the coal outhouses, &c., on one side, and access to the scullery on the other. The two ground-floor windows act as lights to the scullery and kitchen fireplaces respectively, the main kitchen window being on the further side. The cottage is built of 2 in. red bricks from Daveshill, Basingstoke, and is roofed with old tiles. The doors and window-frames are of oak, and the latter are fitted with steel casements and leaded lights. The terrace walls have a coping of old York stone, and the paths are paved with the same in random sizes. Mr. F. Harrild, M.A., of Orpington, is the architect.

Bungalow at Thames Ditton.

This cottage is now in course of erection. The materials employed are concrete blocks (rough-casted) and boarded gables; the roof is covered with tiles. The plan is the outcome of certain special conditions, and the strictest economy has had to be observed.

Mr. T. Frank Hawkes, Lic.R.I.B.A., is the architect.

Bootle War Memorial.

A site in Stanley-gardens, Stanley-road, on the chief tramway route, has been chosen for the Bootle War Memorial. The Royal Society of British Sculptors has, we understand, been invited to arrange a competition among its members in order to select a suitable design.

THE GOVERNMENT AND BUILDING TRADE LABOUR.

ADDRESSING the deputation of London Mayors which waited on him on Monday last to discuss the unemployment problem in London, Mr. Lloyd George clearly defined the strong attitude which the Government proposes to adopt with regard to the admission of more men into the building trades.

Referring to housing, he said: I wish more could be done in this respect. There is a need for hundreds of thousands of houses in this country—a real need. That is not a thing upon which anybody can turn round upon you afterwards, in five years' time, and say, "Why were all these houses built?" The houses are needed. The fact that the houses are not there is really interfering even with trade development in this country. Houses are needed, and in the building of those houses I have no doubt at all that a very considerable number of ex-Service men could be employed. We have done our best with the building trades to secure a relaxation of their rules that would enable the Councils to employ ex-Service men upon house building. We have found them very "sticky."

Mr. Vaughan (Mayor of Bethnal Green): They say it is you. The charge is laid against you.

The Prime Minister: It is no use making any charge now one way or the other. All I say is this. If they say that they will let in the ex-Service men, it is done. It is no use saying "You are to blame." Will they let the ex-Service men in?

Mr. Vaughan: Yes, on conditions.

Mr. Lansbury: If you pay them the wages and they are able to do the work.

The Prime Minister: I beg your pardon; the question of whether they are able to do the work is a question for those who employ them.

Mr. Carmichael (Secretary, London Trades Council): Do you give any guarantee that in years to come, when the housing rush is over, the union men will have work then?

The Prime Minister: They must take their chance with the rest of the community, but to say that 180,000 ex-soldiers in this country are to starve because ten years hence, when these houses are built, they may find themselves out of a job, is a perfectly selfish proposal.

Mr. Carmichael: Is not it a fact that only 7,000 bricklayers are on housing work at the present time, and that all the rest are on "luxury" building?

The Prime Minister: If we are to find more bricklayers and more men to build more houses—

Mr. Carmichael: Take them off "luxury" building.

The Prime Minister: You may take it from me that we are not going to allow it. We are going to employ ex-Service men on building, and if the building trades object to it they must take their chance.

Some of the Labour members of the deputation protested that there were obstacles other than those to which the Prime Minister referred, notably the shortage of cement and timber and congestion of the docks, but Mr. Lloyd George adhered to his statement and said that the other matters would be fully inquired into.

Labour for Housing.

The Ministry of Health has issued the following statement with regard to the Government proposals for augmenting the supply of labour in the building trades:—

It may be assumed that any proposals with regard to additional labour for housing which the Government may have to make will certainly be communicated to the unions concerned in the friendliest spirit. The Ministry of Health wants the co-operation of the building trade. It has no desire to quarrel or to force a quarrel with any section of it. There is, however, a great shortage of labour on housing schemes, a deficiency of labour in the building trade, and great numbers of able-bodied ex-Service men unemployed. In endeavouring to bring the needs of housing schemes for more labour and the need of ex-Service men for more work together, the Ministry of Health will certainly seek to obtain the assistance and co-operation of the trade unions concerned.

EXHIBITION OF ARCHITECTURAL DRAWINGS AT NORWICH.

WE have received the following criticism, signed by Mr. Edward T. Boardman, F.R.I.B.A., and Mr. Stanley J. Wearing, on the exhibition of drawings organised by the Architects' and Surveyors' Assistants' Professional Union at the Norwich Housing and Home Life Economy Exhibition:—

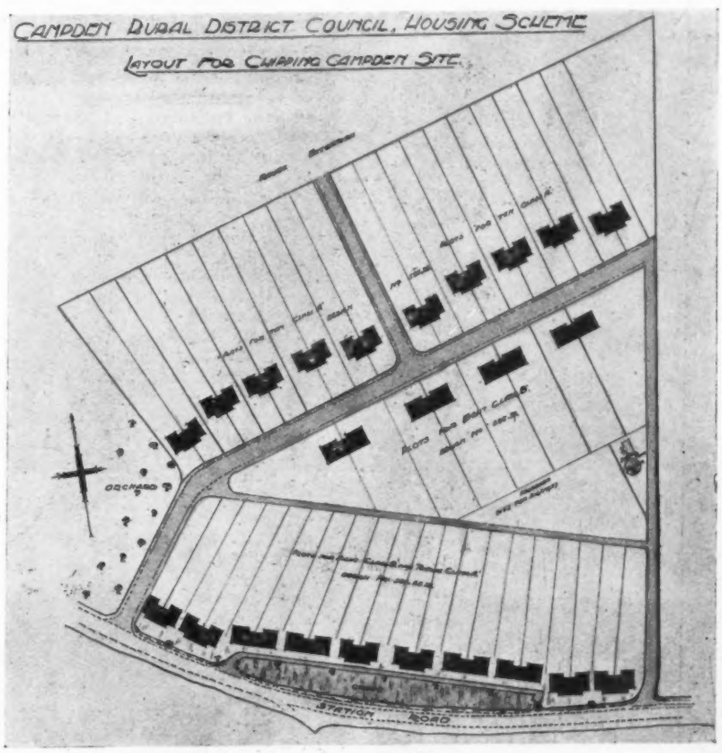
"The Architects' and Surveyors' Assistants' Professional Union are to be congratulated on organising this Exhibition, so enabling assistants living in the provinces to study actual drawings of good work, as well as interesting the public in the art. The drawings which are gathered together represent the efforts of some of the foremost draughtsmen in the country, and many were prepared for important competitions among students. The exhibits fall into several well-defined divisions:—

"(I) MEASURED DRAWINGS.—The measured drawings show excellent choice of subject, and all are well drawn. We would, however, mention those by Mr. J. Grieve, A.R.I.B.A., depicting the south porch of St. Mary's, Beverley, shown with a clear and firm line, the jointing of stonework being carefully indicated. Also the drawings of St. George's Hall, Liverpool, drawn by Mr. F. O. Lawrence, B.Arch. (Liverpool), A.R.I.B.A., this year's Prix de Rome winner; the draughtsmanship and method of portrayal here are of a very high order.

"(II) SKETCHES.—We should have liked to have seen a larger exhibit under this heading to inspire this very instructive and enjoyable part of our studies, which should be the recreative side of the profession. There are some charming little sketches by Mr. Harvey, B.A., and etchings by Mr. C. Newman are worthy of note. Two panels of mounted sketches by Mr. Hofler, some in pencil and some in colour, show draughtsmanship of rare excellence and are worthy of very careful study.

"(III) ARCHITECTURAL DESIGNS.—Under the heading of 'Architectural Designs' there is a very excellent show, and much for the student to study carefully. The Opera House, by Mr. Hamlyn (winner of the British Institution Scholarship in Architecture of £100 in 1913), is boldly conceived, and does not suffer by the restraint of the fixed sum which we are so often up against in our daily practice. The design submitted for the R.A. Gold Medal for a Town Hall, by Mr. R. J. Thomson, shows an ambitious plan and a delicately drawn half-inch detail so well associated with work from this school. Amongst other good sheets some by Mr. McLachlan, A.R.I.B.A. (Honorary Secretary of the Union), are shown. There are many other drawings which show the scope and quality of work which is being done in the great architectural schools of the country.

"Students will do well to notice the design for almshouses, by Mr. Harvey; the planning is arranged on a confined site round the grass court, and the stippled treatment of finishing the drawing is one we have noticed favoured by architectural draughtsmen to-day, as the exhibits at the Royal Academy bear evidence. Amongst such a well-selected set of drawings there is much to be learnt by every student under the different headings mentioned. A careful and detailed study of the methods adopted by the draughtsman in obtaining the effects produced is an opportunity that should not be missed."

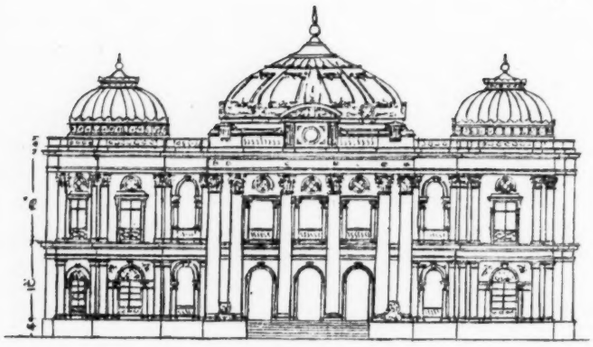


MR. W. L. LISSAMAN, M.S.A., Architect.

[These houses are designed for the Station-road site, Chipping Campden, of nearly 12 acres, plotted for 48 houses, which have unobstructed views from both back and front windows for several miles. Local stone walls, random faced, with stone slates are used for flanking houses and hand-made dark brown tiles on the remainder. Steel casements and frames are used for the windows. Variety of elevation is obtained by mixing up the two classes "A" and "B," and also by introducing dormers in place of gables at some points. The interiors of Class "B" houses will have open joists of English timber exposed and stained. Mr. W. L. Lissaman, M.S.A., of Broadway, Worcestershire, is the architect.]

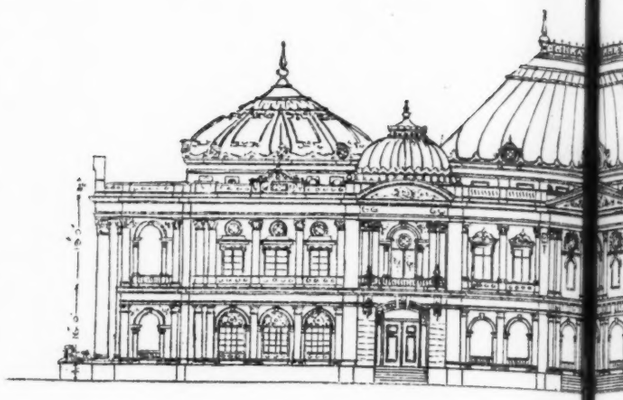
VIEW OF PRINCE'S SQVARE E. : WITH OLD SWEDISH LVTHERAN CHVRCH:
RE-ARRANGED FOR THE CHILDREN OF THE NEIGHBOVRHOOD AS A PLAYGROVND & MVSEVM FOR THE LOVETT COLLECTION OF TOYS

[This drawing was exhibited by Mr. T. Raffles Davison in last year's Royal Academy Exhibition. It illustrates a scheme for a London improvement which now appears to have fallen through.]

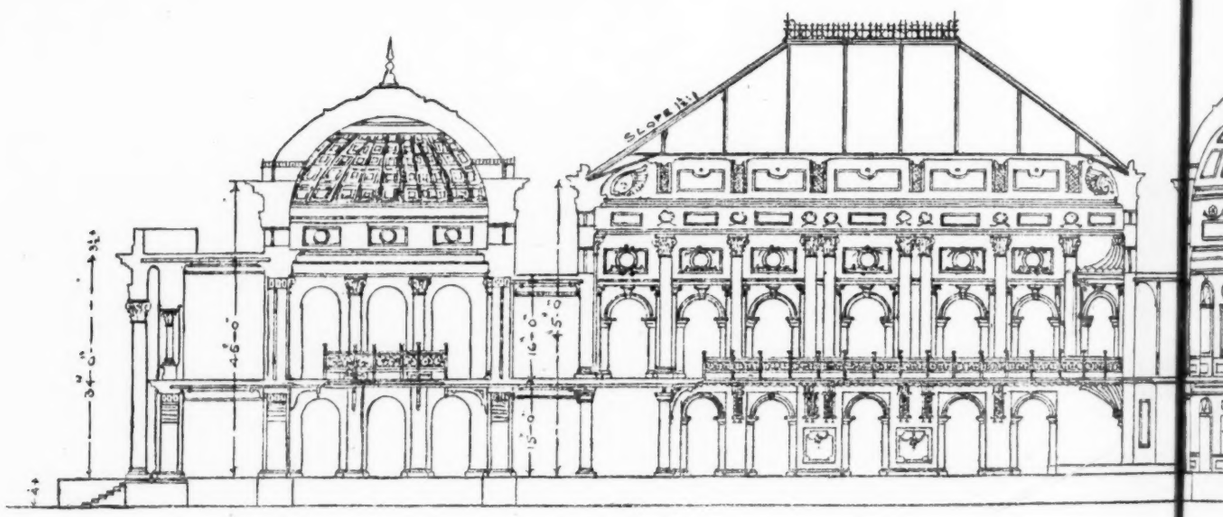


SCALE 20 FT.

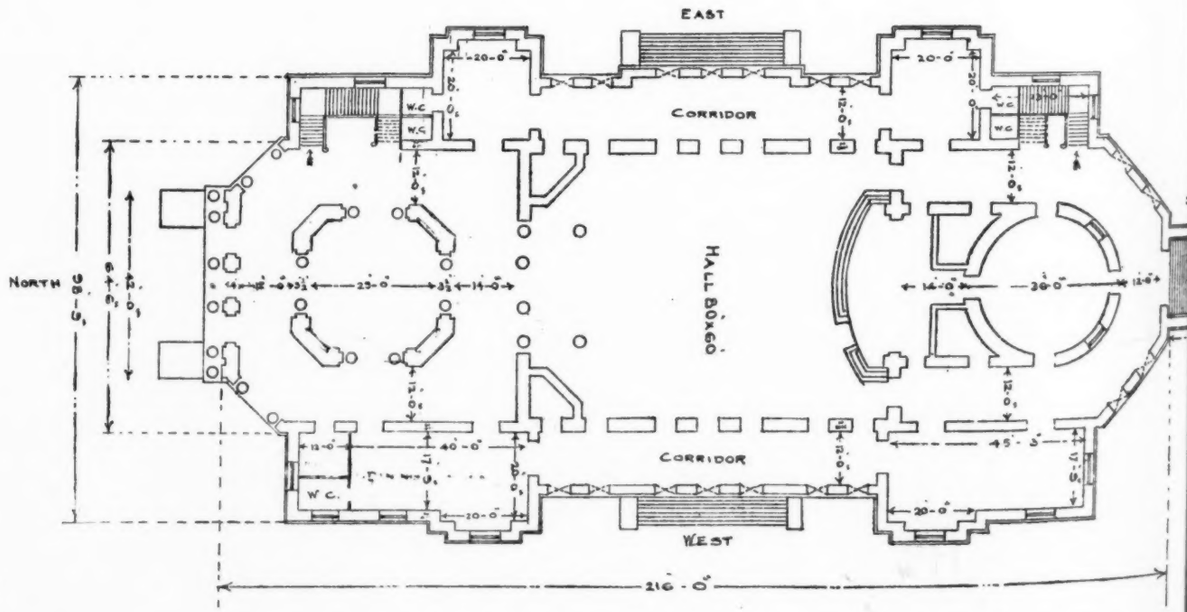
SIDE ELEVATION, NORTH.



FRONT ELEVATION.

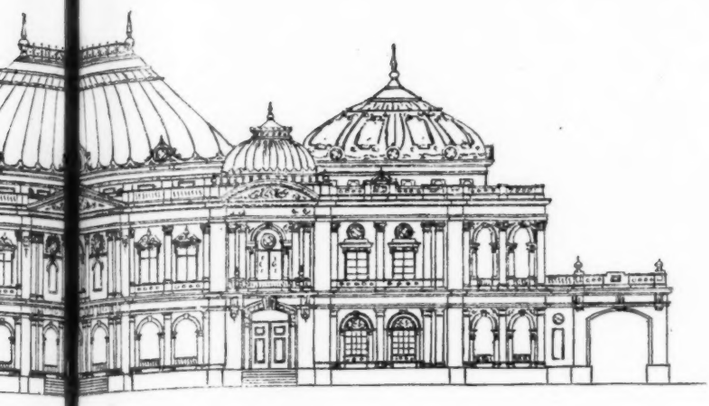


LONGITUDINAL SECTION.

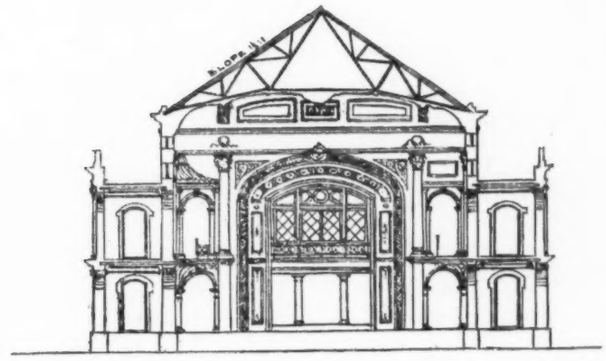


GROUND FLOOR PLAN.

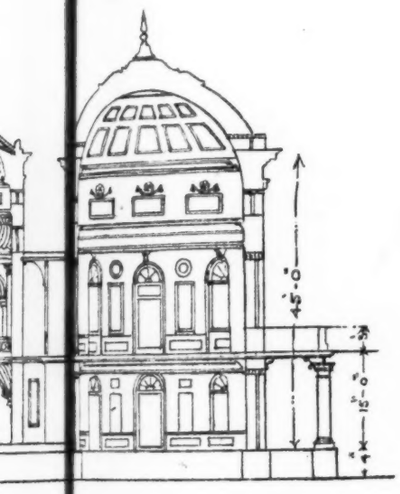
DESIGN FOR KRISHNARAJA HALL, BY MR. S. H. LAKSHMI

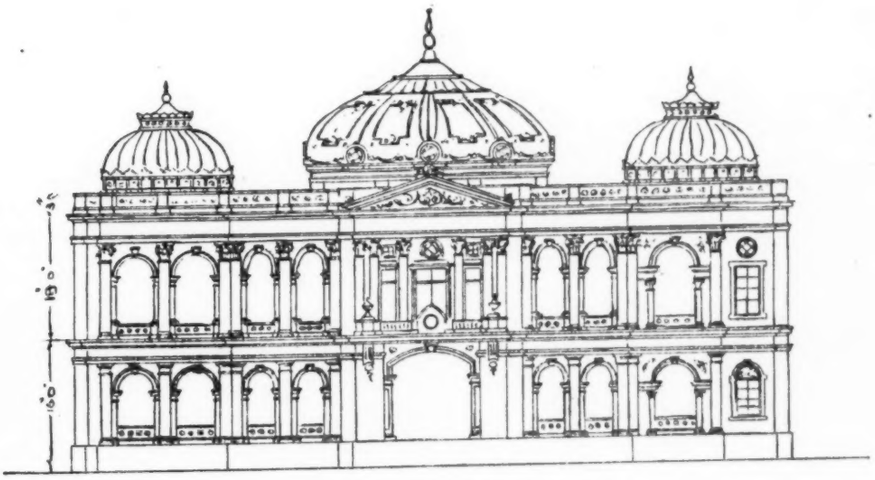


FRONT ELEVATION, EAST

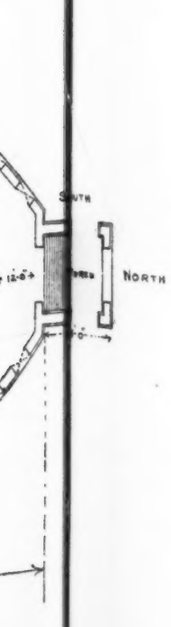


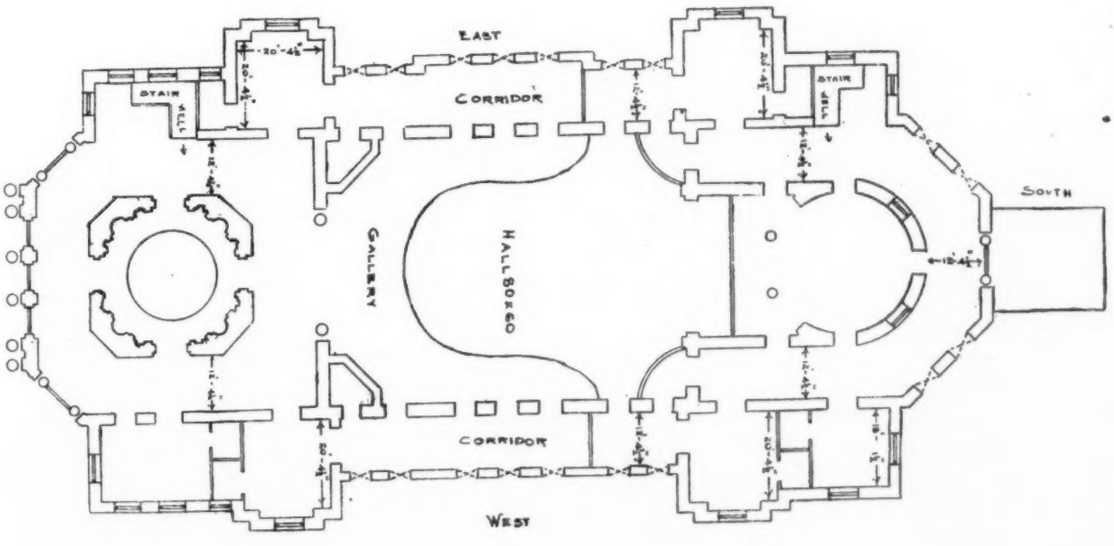
CROSS SECTION.





SIDE ELEVATION, SOUTH.



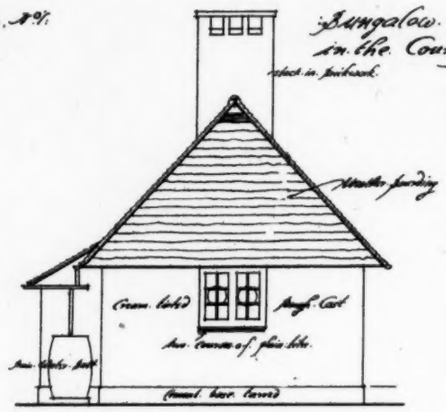


FIRST FLOOR PLAN.

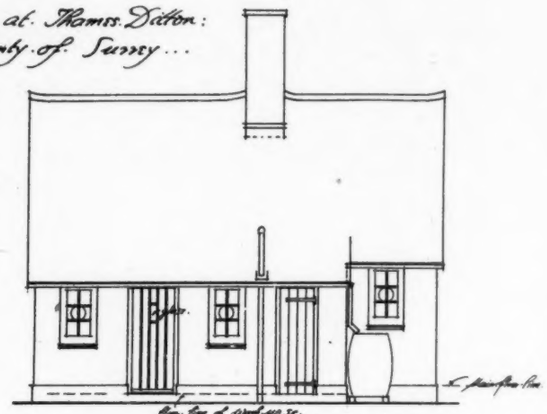
MR. S. H. LAKSHMI NARASAPPA, B.A., B.E., B. ARCH. (LIVERPOOL).

Working Drawing No 9.

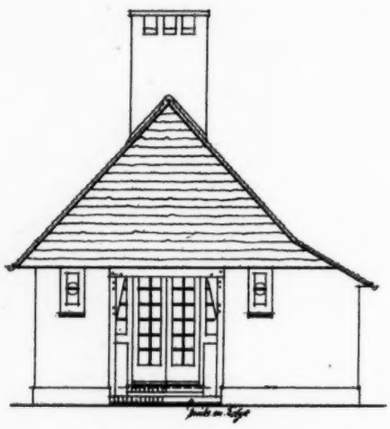
Bungalow at Thames Ditton:
in the County of Surrey...



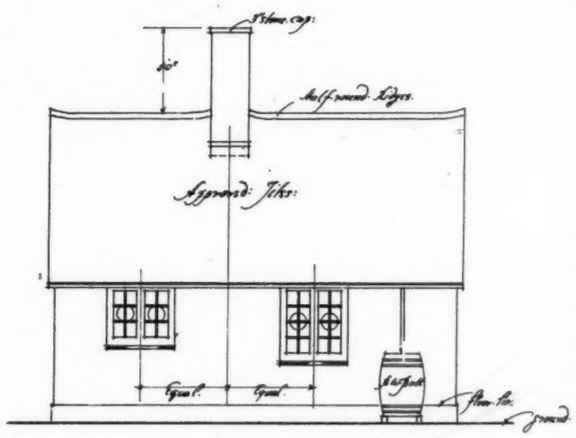
End Elevation (East)



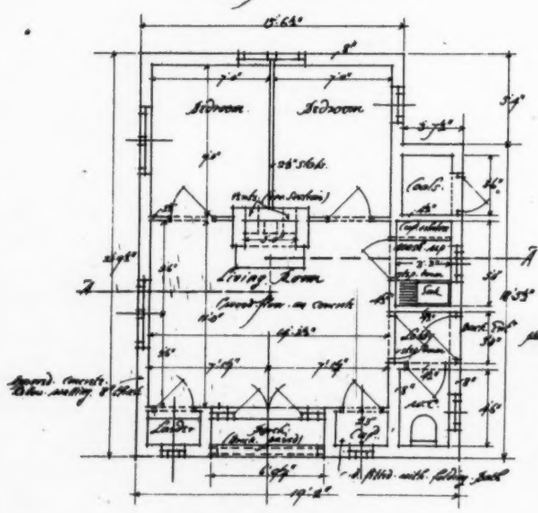
Side Elevation (South)



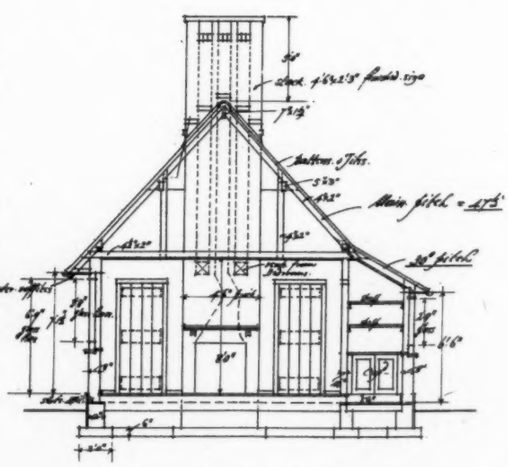
Garden Front (West)



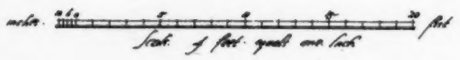
Front to Ashley Road



Plan



Cross Section on Line A.B.

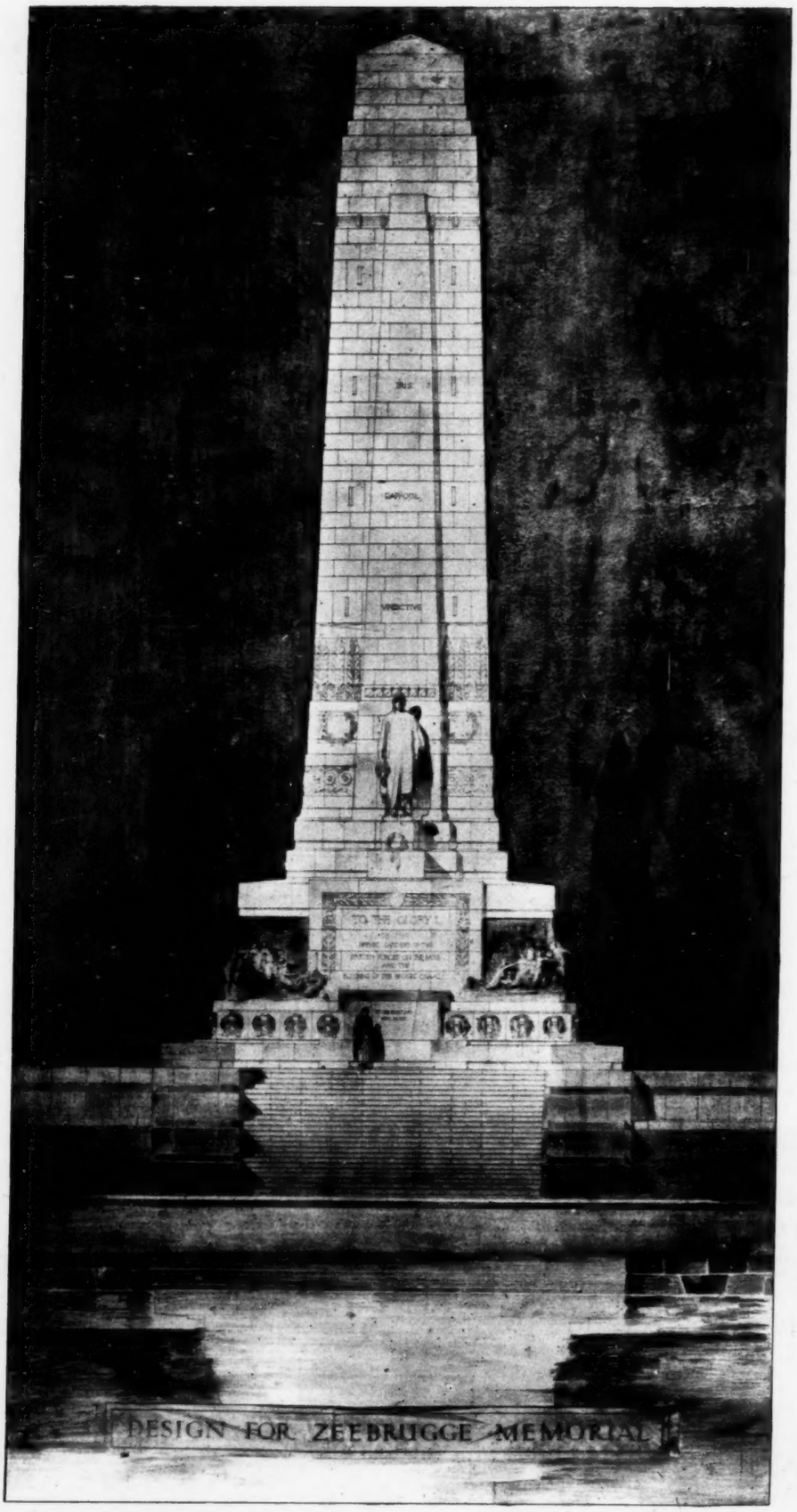


Scale 4 feet equal one inch

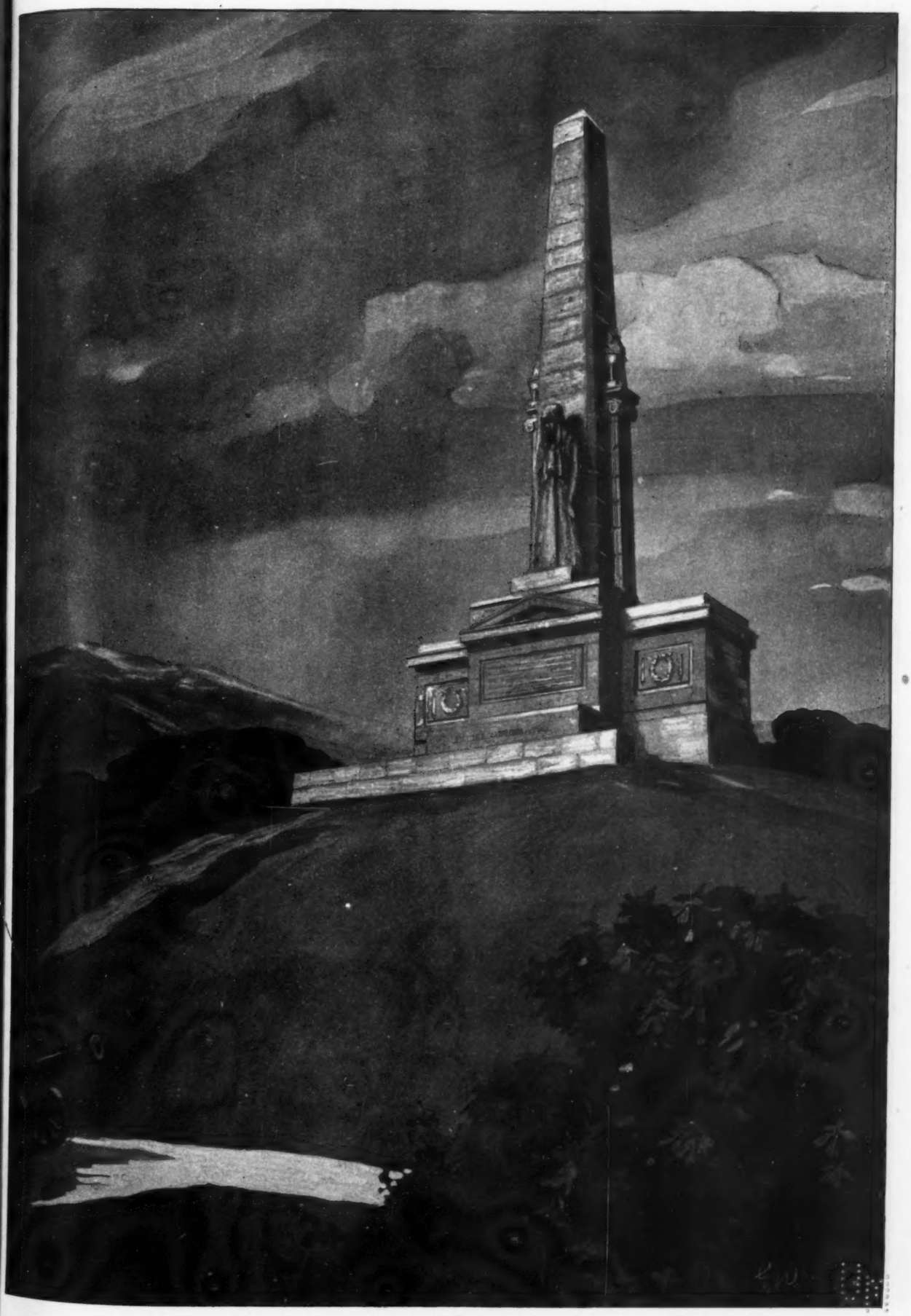
N.B. For 2" x 1" fast. sign. details for sill, fanlight, &c.
All windows to open.

J. Frank Hawkes Lic. R.I.B.A.
Architect
Church Walk Thames Ditton
August 1920

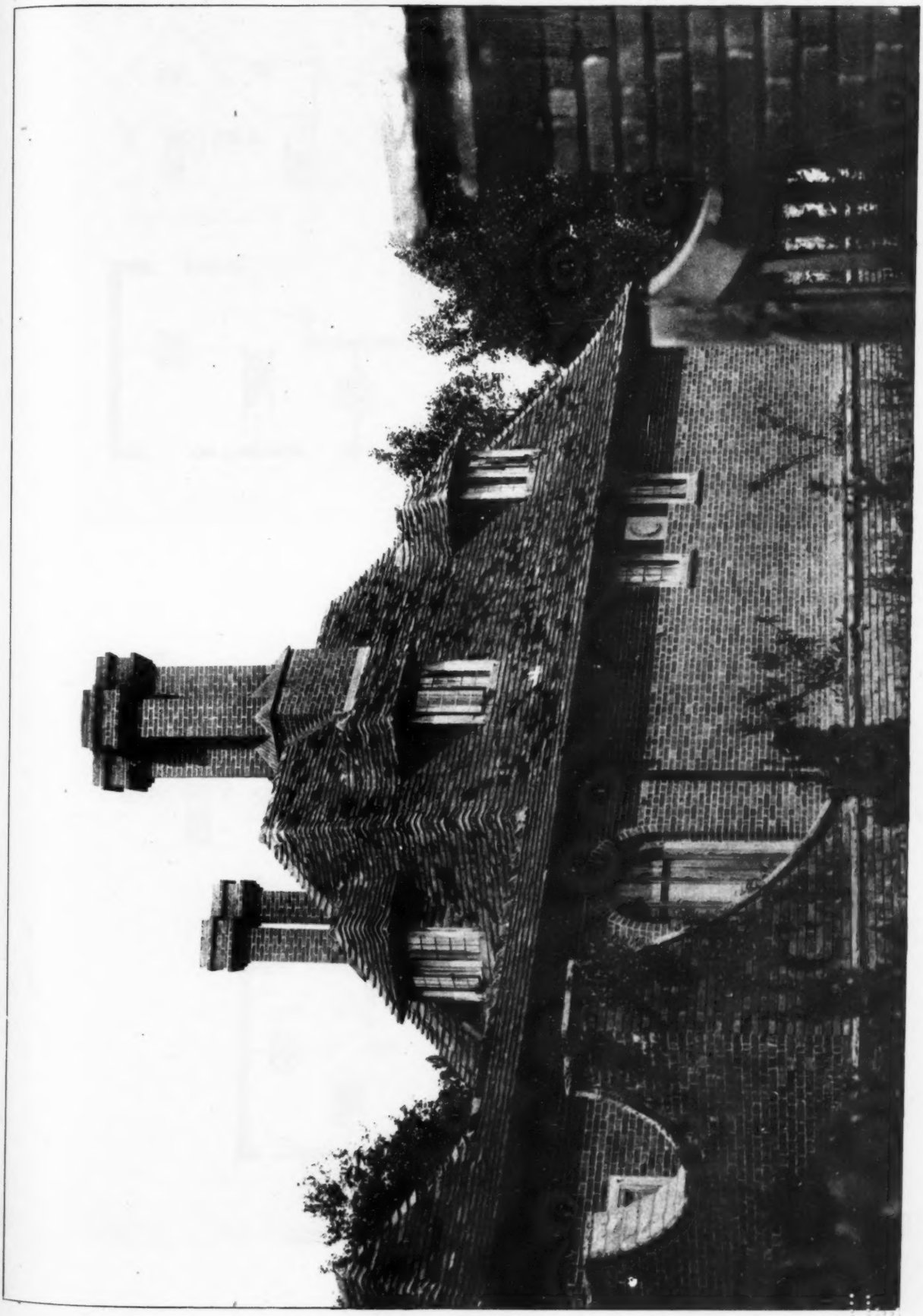
BUNGALOW, THAMES DITTON. MR. T. FRANK HAWKES, ARCHITECT.



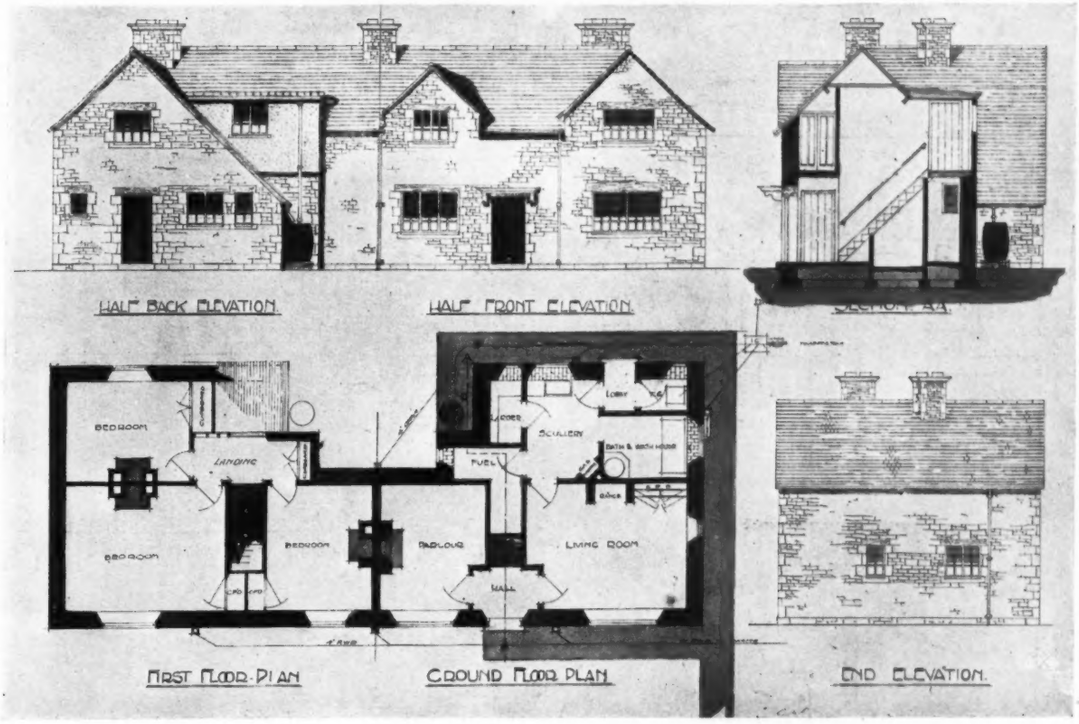
DESIGN FOR ZEEBRUGGE MEMORIAL, BY MESSRS. TATE & REID DICK.



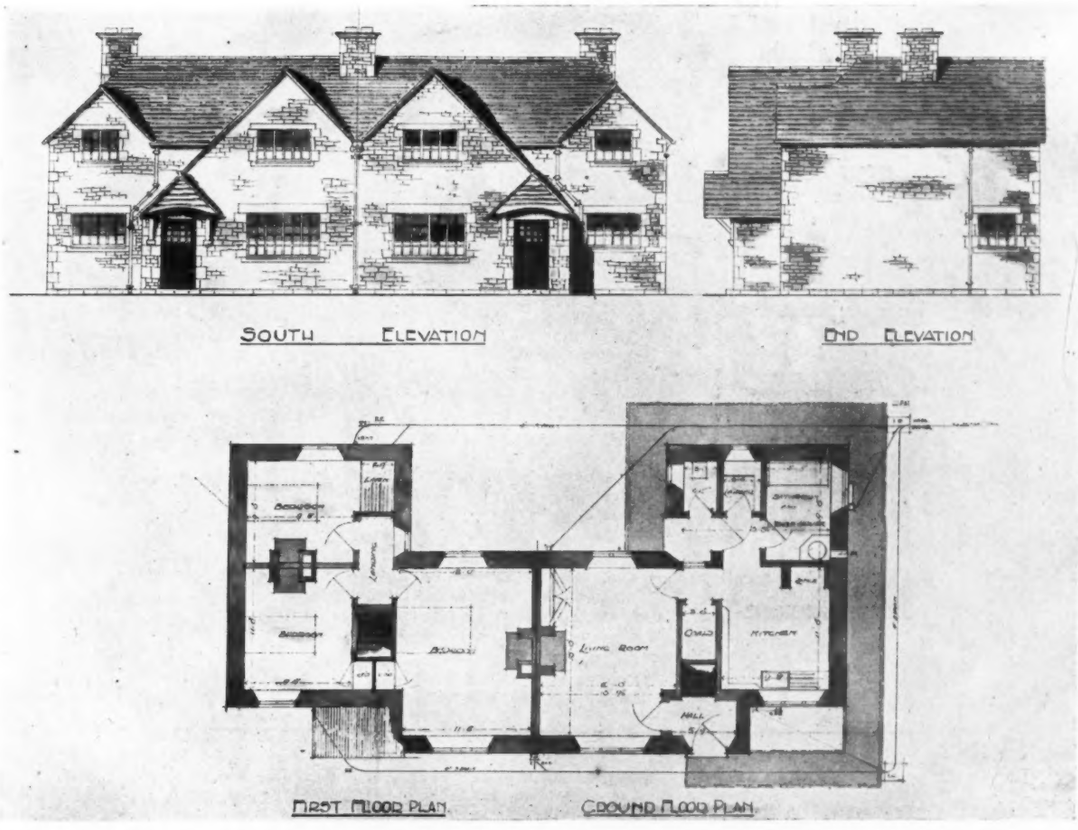
DESIGN FOR ACCRINGTON WAR MEMORIAL, BY PROFESSOR C. H. REILLY, F.R.I.B.A.



COTTAGE AT CHISLEHURST, KENT. MR. F. HARRILD, M.A., ARCHITECT.

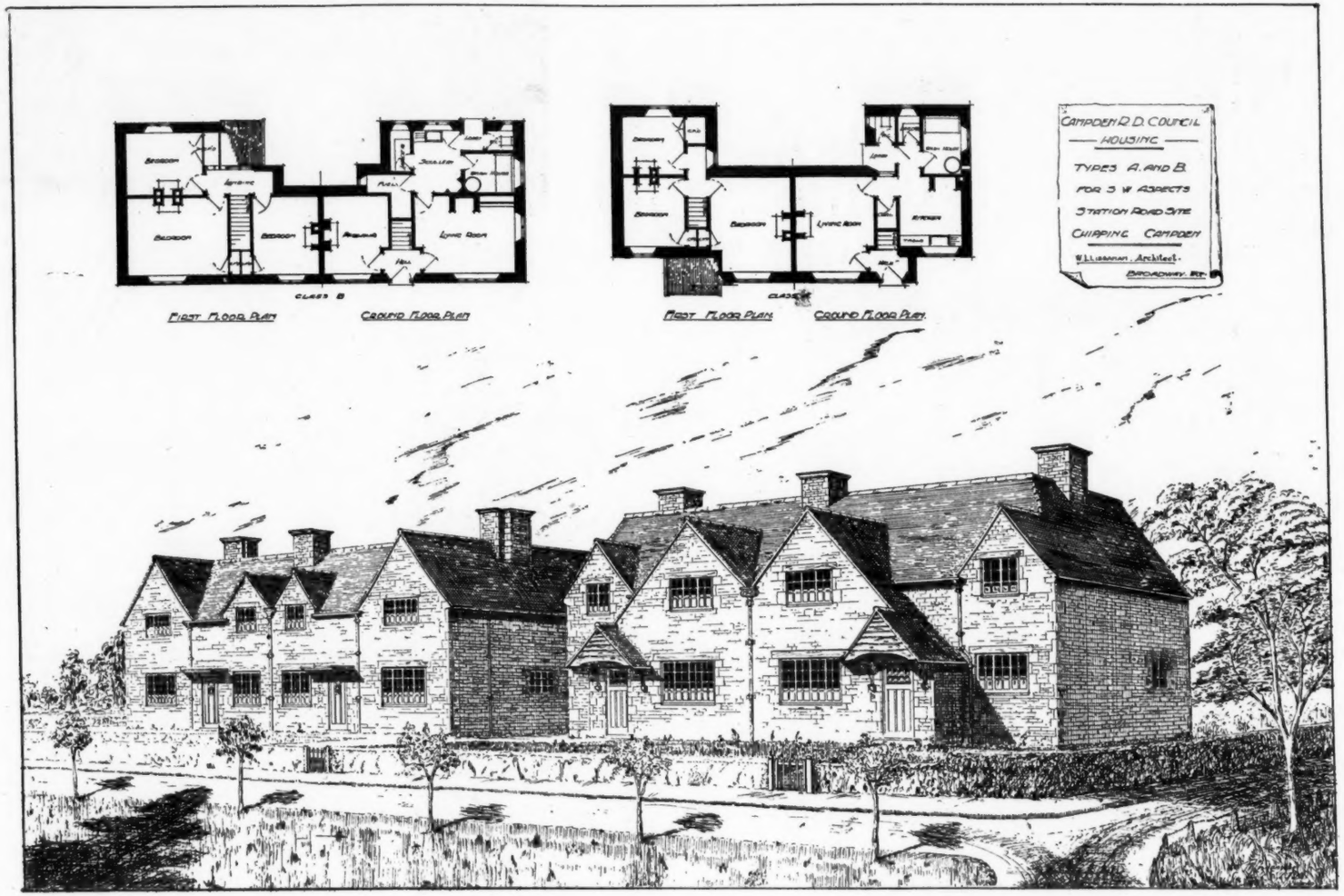


CLASS "B" HOUSES.



CLASS "A" HOUSES.

Chipping Rural District Council Housing Scheme.
MR. W. L. LISSAMAN, M.S.A., Architect. (*See* page 457.)



Chipping Rural District Council Housing Scheme.—MR. W. L. LISSAMAN, M.S.A., Architect. (See p. 457.)
[These plans have been revised, and are being carried out as shown on p. 459.]

PROPAGANDA, OR PEACEFUL PERSUASION.

By H. Bryant Newbold.

That the name of a society in Rome which has charge of Roman Catholic missions should have come to be another word for publicity is peculiar; but we who have survived the great scourge live in peculiar times—times when the pre-war meanings of words have altered in many instances. "Houses fit for heroes to live in," for example, now turns out to mean costly and excruciatingly-furnished rooms in the house of another, wherein neither dogs nor children are allowed. "A living wage" now means one which increases monthly in a futile game of leap-frog with the greater monthly increment in the cost of living. And a "Ministry of Housing" means—well Æsop tells of a dog who sat on the horse's food and bit the hungry horse's nose; he could not eat the hay himself, nor would he permit one especially designed so to do. "The working man" to-day means one who does'nt; and "labour" means those who converse with Ministers of the Cabinet, pointing out to them the way that they should go.

All of which, whilst being in itself of undoubted interest, might be thought to have very little to do with propaganda. But so far from such being the case, on the contrary, it has everything. For did not Carlisle write: "It is no very good symptom either of nations or individuals that they deal much in vaticination. Happy men are full of the present, for its bounty suffices them; and wise men also, for its duties engage them. Our grand business undoubtedly is not to *see* what lies dimly at a distance but to *do* what lies clearly at hand." Which, coming from a seer, is particularly interesting, and would lead to some excusable introspection. We may reasonably inquire how often to-day do we meet a really happy man "full of anything"; we might say "how rarely" and never one "full of the present." For in most cases the honest prosecution of a man's work is not permitted to him; either his output is limited to that of the poorest worker or his particular metier is commandeered by newly-formed ministries, and he himself is persecuted. And thus is he prevented from "the grand business," for he cannot do that which no longer lies clearly at his hand.

Where shall we find a really happy man? Is the labourer, with his increased rate, the happier for his restricted output? If so, he has a peculiar way of showing it. Go, if you are so fortunate as to know of one, to a spot where building is in progress; and if you are not reminded of that delightful story wherein a certain princess by pricking her finger plunged herself and all around her into instantaneous and perpetual sleep, then you are strangely lacking in imagination. For where in the past there used to be the merry music of the hammer and the saw, the refreshing plane making pleasant business with shavings, now is heard, disturbing the prolonged lulls of silence ordained by authority, the distressing sound of men irritably quarrelling. These same men once whistled light-heartedly at their work, for in those degenerate days they had only their work to think of, whilst now they must work with one eye on the pressure gauge; and there is nothing more distressing than to climb a hill with both brakes on.

Where shall we look for happiness to-day? Is it with the wife of the working man, worried over the rapidly-rising cost of food? "Fine feathers make find birds," say you. Yes, and finer feathers seen over the garden wall next door give rise to most gangrenous dissatisfaction. For in the old days, though dressed perhaps not as either would have wished, neighbours stood at their doors with arms akimbo and at least shared their grievances; whereas now yellow jealousy denies such sympathy.

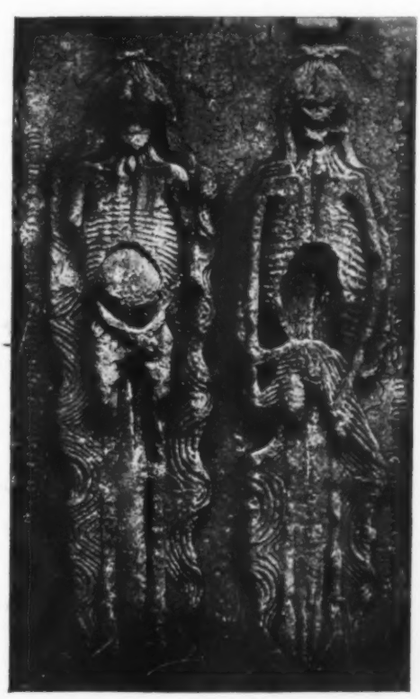
Where, then, shall we seek a really happy man to-day? High up amongst the Cotswolds there is a village known as Painswick, still appearing much the same as when in the fifteenth century the Cotswold wool was at the height of its fame. And amongst other things of Painswick it is said that there men never die. What becomes of them is not told; perhaps, like poor soldiers, they "simply fade away." The following anecdote, however, is told of a man still living there, and he is very ancient. An old man, passing old, was found crying bitterly in the avenue of over a hundred yew trees which leads to Painswick church. When asked why he wept, the old man replied that his father had been a shade harsh with him. The kindly inquirer, who no doubt was the curate, taking the old man by the hand sought out this unfeeling parent, who, with that mumbled utterance peculiar to the ancient, denied the accusation, saying that it was not he but his father, the grandfather of the old man, who had been unkind. "And where is he to be found?" inquired the curate, who in reply was told, "Oh! he's up the apple tree picking apples." And when they—the curate, the old man, and the old man's father—were come to him, or rather to the tree in which he sat, perched on a topmost branch gaily swinging his legs and munching an apple, they found him to be stone deaf and almost blind. And yet he laughed continuously. There was no sign of hurry about any of his movements. He had earned no money for the last forty years, and he had never learned to read or write. Yet, at an age which one would scarce dare to tell, he sat dangling his legs some twenty feet above, chuckling happily the while. "He at least seems happy," said the curate, somewhat nonplussed. "Bless you what 'as a to be miserable about? A doant knaw nothin'." "Yes, indeed," commented the curate, but this time to himself, "if one were only deaf and blind, and could not read or write and knew nothing, then indeed one might be happy. For, as Solomon said, 'Of the making of many books there is no end, and much study is weariness to the flesh.'" So saying, the curate sighed, and wondered if, after all, this education had resulted in any increase of happiness.

Hard upon this comes one who disturbingly suggests organised publicity on the part of the Government for the edification of the working man, and in particular for those engaged in the building trade. At first sight the suggestion would appear as sound. But, does the Government really wish to enlighten labour? And, if it does, are not the working men somewhat prejudiced against smooth talk from those in authority? Putting on one side, for the moment, our own particular views as to whether the Government really wishes to encourage building, forgetting if we can the suggestion which has been made that such an intensely magnetic personality as that which inspired the nation with such a whirlwind of enthusiasm over the making of munitions, could, if its possessor desired, do a like service in the matter of building, let us for the moment think only of ourselves; that is, of those who comprise the building trade. Are there no personalities amongst us? Must we all wait to be told what we must do before we can act? Can we not come together ourselves and discuss the situation? Can we not meet, not as employers and labour—architect and builder, foreman and operative—but just simply as men? It is this top-hatted view of life which has stood in our way. The time for social distinction is passed. Death from Fritz, or the Bolshevist executioner Saenko, or starvation, knows no distinction, social or otherwise.

Are we in earnest? Or do we just grumble to amuse ourselves and then go home to sleep it off? If we are in earnest, then is it impossible for the chief builder, builders' foremen, craftsmen and labourers in every town and village in our country to meet together, one, two, or every evening in the week if need be, in some convenient place, amicably, and for the better enlightenment of all, to discuss the position in which every one of them is now placed? Let us be honest with ourselves. For, like it or not, we are all living in the same world together; and for a few to talk down to others is only to offend and widen the breach. We of the building world are all men with like desires; and we are all concerned in the same prosperity. Our means of living is the same—by building. Further, we have at heart a great respect one for the other. So that if we are agreed let us not endeavour "to see what lies dimly at a distance," but to "*do* what lies" so very "clearly at hand."

To this end it is suggested that Guilds of Handicraft be re-established—not for work alone, but for social recreation, and in order that we may come to know each other better, and to discover, as in the end we must, that our aims and interests are one and the same, and that we share most things in common, particularly life. In fact, and to those who have been concerned in the Boy Scout movement the meaning will be clear, let us apply the Scout Law to our business life. Let the architect, should he feel so fitted, be the Scoutmaster, and the builders and foremen the patrol leaders, whilst the men will be the members of patrols; and to each and all of them the honour of the troop, guild, or what you will, shall count as their most treasured asset. Let the evening gatherings be both pleasurable and informal; let there be debates on subjects in which any interested may take part, not mere lectures which must be listened to; for it is from open discussion that most is to be learned. And let there be games, and, by all truly British means, beer. In fact let there be whatever is needful to ensure a better understanding. For in the present narrowing age of specialisation, each in his narrow rut sees nothing of his neighbour's field. Nowadays man's political views are generally those of the newspaper he chances to read, and his views concerning his work are those instilled into him by his leaders—neither of which inspirations are personal.

This is where printed propaganda from a Government is bound to fail. A Government, as such, is suspect; and printed matter is impersonal. Whereas sympathy, which means derivatively "a feeling, and, if necessary, a suffering with," makes the whole world one, which, incidentally, might be considered as a true definition of Unity.



[The above photograph is of an ancient vault lid, belonging to the Baron Golding, of Slane, Co. Meath, in St. Peter's churchyard, Drogheda. When Cromwell took the town he destroyed the vault, but afterwards the lid was found and built into St. Peter's churchyard wall. The figures are the Baron and Baroness Golding of Slane.]

A General Meeting of the Society of Architects was held at 28, Bedford-square, W.C., on Thursday last week, the retiring President (Mr. Edwin J. Sadgrove) in the chair.

Election of Officers.

The first business on the agenda was the announcement of the scrutineers' report of the ballot for the election of Office Bearers and Members of Council for the year 1920–21, which was as follows :—

President.—Sir Charles T. Ruthen, O.B.E. (Swansea).

Vice-Presidents. — Messrs. Edward J. Partridge (Richmond), Noel D. Sheffield (London), L. Sylvester Sullivan (London), and A. J. Taylor (Bath).

Hon. Secretary. — Mr. Thomas Wallis (London).

Hon. Treasurer.—Mr. George H. Paine (London).

Hon. Librarian.—Mr. Ellis Marsland (London).

Ordinary Members of Council (London).—Messrs. A. Burnett Brown, F. Hall-Jones, T. Stewart Inglis, E. J. Partridge and A. F. A. Trehearne, for three years; Messrs. George Baines, H. Freyberg, L. S. Sullivan, G. B. Tubbs and G. H. Wenyon for two years; Messrs. W. Hunt, W. G. Ingram, G. Blair Imre, H. C. H. Monson and C. F. Norman for one year.

Ordinary Members of Council (Country).—Messrs. Harry Barnes, M.P., and C. F. Skipper for three years; Messrs. P. B. Houfton and A. J. Taylor for two years; Messrs. T. Taliesin Rees and T. F. Tickner for one year.

Licentiate Members of Council.—Messrs. F. Juniper and E. E. O. Lawrence.

Mr. Sadgrove then placed the Presidential badge and chain upon Sir Charles Ruthen, and in doing so said he apprehended that Sir Charles would be able to occupy the chair with great dignity and with credit to himself, to the Society and to the architectural profession as a whole.

Sir Charles Ruthen, in taking the chair, said he felt it a tremendous honour to occupy the position of President of the Society of Architects. The Society had done great work in the past and he hoped that work would be continued in the future. Mr. Sadgrove had occupied the position of President of the Society during four of the most difficult years in the history of any professional body, and he deserved the thanks not only of the Society but of every architect. He proposed, therefore, that his services should be marked by the presentation of the Society's Gold Medal. The Gold Medal was the greatest honour the Society could give, and he thought that bestowing the greatest honour they could give was the least they could do to show their appreciation.

The proposal was seconded by Mr. Percy Tubbs, and carried unanimously.

Central Heating of Small Houses.

Mr. C. M. Lyman then read a paper on Central Heating of Small Houses (given in our last issue), in which he described the "One-Pipe" system of central heating.

The discussion was opened by Major H. Freyberg, who said there were several details in the "One-Pipe" system which he would like elucidated. He would like to know whether they were careful to keep the heated air away from the furnace, because he remembered the extensive failures that were sometimes met with in similar installations in English country houses. In these installations there were huge brick stoves in the basements, iron tanks and iron conduits under the floors, with iron gratings in the floors of the rooms above, or perhaps valves to turn the air on and off. These installations in this country had been a complete failure owing to (1) the expense of installation; (2) extravagance of fuel; and (3) the insanitary smell of iron. He wanted to be assured that the "One-Pipe" system would get rid of these objections. He would also like to have a more exact definition of what the "One-Pipe" system meant—what the one pipe was composed of and what it was. What was the termination of the pipe? What sort of fuel and what type of stove were used? How frequently did it need stoking? He had found in central heating installations he had carried out, principally with radiators, the great difficulty was to get people to understand the stoking. He had been told in one house that if the furnace was not stoked every four hours the farthest radiator got cold. Another point to be considered was how far such a system would bring up dust and dirt in the trail of the travelling air. If these central heating systems were proposed to be extensively installed there should be one on show at the next Building Trades' Exhibition, so that those interested might have an opportunity to inspect it.

Mr. Ellis Marsland (Borough Surveyor, Camberwell) said the cost of coal was making the heating question an acute one, and many prejudices would have to be dropped in order that houses might be heated in a proper and efficient way. Something must certainly be done to alter the present extravagance in fuel and fouling the atmosphere with coal smoke. The climate in America was much more stable than in this country; they knew when the cold and hot seasons were coming, whereas in this country fires were wanted in July and in October they were often unnecessary. At present we were trying by every possible means to do without basements, owing to the high cost of labour, but basements were absolutely necessary for the "One-Pipe" system of heating. There was also the question of the open door. In England people liked to keep their doors closed, and at times they were required to be closed. What happened to the circulation of the air and, consequently, the warmth of the room when the door was closed? If the system were generally adopted we must be prepared for less privacy and adopt a more open way of living. The case of contagious disease had also to be considered; in such a case the door of the patient's room would have to be kept closed, and, if there were no fire in the room, what happened to the unfortunate patient?

Mrs. Lyman said that, speaking from the woman's point of view, one stove could be stoked with much less trouble than several fires. The "One-Pipe" heater was the easiest thing in the world to keep in order, and it was not necessary to go into the cellar to regulate it.

Col. Hartley said he did not believe in the "One-Pipe" system of heating. He did not believe in heating air to a high temperature while the same result could be obtained, although possibly at an increased expenditure, by heating water up to 140, 150, or 160 degrees. He believed in hot-water systems and not hot-air systems.

Mr. W. W. Nobbs (President of the Institution of Heating and Ventilating Engineers) said he condemned the "One-Pipe" system utterly. The lecturer approached the subject as if this were the only central heating system in general use, but both in England and America many other systems were in use. The "One-Pipe" system was tried out, abandoned and forgotten in England many years ago. In his opinion such stoves were insanitary for reasons which every engineer would know. Instead of fresh air being brought in the air in the house was constantly re-circulated by travelling down the walls and stairs and along the floors, taking the dust with it to the bottom of the beater. This dust was afterwards re-distributed into the rooms. The principal reason for the disuse of these stoves in this country was the danger which occurred through the expansion and contraction of the metal of the furnace with the alternate heating and cooling. This led to cracks, with the result that sulphur fumes and carbon dioxide were spread into the rooms. In the plans shown by Mr. Lyman the stoves were all shown in the centre of the houses, but in this country it had been found that the point of delivery for the hot air from the stove to the house should be well on the windward side.

A vote of thanks was passed to Mr. Lyman, who, in replying to the discussion, said he had not meant to indicate that the "One-Pipe" system was the only method of central heating. He had had experience with all kinds of systems, and in America they had a system of warm air heating which had hot-water heating beaten hands down. He did not believe in the air being admitted to rooms at a temperature higher than 140 deg. Fahr., so that the air would not be overheated. With regard to smell, that could only come from a casting, when it had been properly erected, by dust burning on it, and that also applied to hot-water heating. Unless something were radically wrong with the draught of the chimney or the connection to the flue were cut off, carbon dioxide would not penetrate even through a cracked casting. The system was described as the "One-Pipe" system because that term was scientifically correct; the word "pipeless" was not scientifically correct. He thought he would not be overstating the matter if he said that at least 100,000 houses of all classes used the "One-Pipe" system last year in America, and there had been less complaint than with any other system. He had designed hot-water and vapour heating systems for many years, and had had more trouble with these systems than with the "One-Pipe" system. Anything could be burned in the furnace. The system required a grating in the floor for the admission of the heat from the cellar to the rooms, and that was admittedly a serious objection in the view of many people. Where soft coal was burned it would cause the dust to make a streak up the wall, but that would also apply to hot-water radiators or any other system; with the "One-Pipe" system it was, however, infinitely less noticeable than with open fires—it was so slight that it could not be called a serious question. The cases of illnesses in which it was necessary that the patient's door should be kept shut were so rare that they would not affect the general adoption of the system. The cost of excavating cellars was a serious one, but in America all houses were built with basements, and the houses raised from 18 in. to 3 ft. from the ground to avoid dampness. American houses were, therefore, drier than English houses.

A Restored City Church.

The Church of St. Mary the Virgin, Aldermanbury, which has been restored at a cost of £3,000, as a memorial to the men employed in the surrounding warehouses who died in the war, was re-opened last week.

Glasgow Institute of Architects.

Under the auspices of the Glasgow Institute of Architects, an interesting syllabus of lectures has been arranged for the 1920–1921 session. The series commenced with a history of the Glasgow Institute of Architects from its origin in the year 1893, by Mr. John Keppie—who, by the way, was one of its original members—and this will be followed by other lectures on "The Preservation of Ancient Monuments," by Mr. J. Wilson Paterson; "The Business Side of Architecture," by Mr. James Miller; "The Development of the College System in the English Universities," by Professor R. S. Rait; "Arches," by Mr. Archibald Barr; and "Roman Fine Art Collectors and Connoisseurs of the First Century," by Professor John S. Phillimore. It is also proposed to arrange for a number of architectural visits by the members to places of interest commencing in April, 1921.

CENTRAL HEATING AND VENTILATION.—IV.

BY A. J. WELLS.

"ONE-PIPE" HOT-WATER SYSTEMS.

ALL gravity and accelerated hot-water systems may be classed under three headings:—(1) One-pipe; (2) two-pipe; (3) compound.

The general arrangement of a one-pipe system is illustrated in Fig. 1. It will be observed that the radiators have both flow and return connections taken off the same main or circuit pipe, and that the cool water from one radiator mixes with the hot water in the circuit pipe, thus reducing the temperature of the flow to the next radiator. In other words, the flow water to the first radiator is very hot, the second is hot, the third is warm, and so on until the flow to the end radiator on the circuit is very near the return temperature of the circuit pipe. This decrease in temperature is one of the undesirable features of a one-pipe system, because the radiators either have a very low uniform mean temperature or the average temperature of each radiator varies according to its position on the circuit. In the latter case the emission also varies, and the size of each radiator must be calculated on an emission per sq. ft. corresponding to the mean temperature of the radiator. This fact is often overlooked or disregarded, with the result that the hottest radiators are too large and the coolest radiators are too small; the efficiency of the apparatus is, therefore, seriously impaired.

Many engineers state that the one-pipe system is less likely than the two-pipe to short-circuit or fail through the use of haphazard and inaccurate calculations. The statement is quite true, because the excessive cooling of the vertical drop circuit pipes generally produces a greater circulating pressure than the index radiator on the two-pipe system, and also because the water flowing through each radiator is independent of the circulating pressure produced by the main and circuit pipes. But that is no excuse for installing a one-pipe system when a two-pipe would have been more suitable; by adopting scientific calculations and correct design there is no fear of either system short-circuiting or failing. The type of system installed must be determined by the client's requirements and the difficulties to be overcome in erection. Sometimes it is practically impossible to install a gravity two-pipe system in a building, owing to the particular shape or the obstacles present in the form of girders, doors, &c., even when that system is preferable. The one-pipe method should not be used for accelerated systems unless very sound reasons are given in favour of its adoption, because, although the circulating pressure may be slightly increased over that produced by the two-pipe method, when a pump or accelerator is used this slight increase is practically negligible and all the disadvantages appertaining to the excessive decrease in temperature still remain.

The degree of cooling depends upon the amount of water flowing through the circuit pipe and the heat given off by the radiator.

Thus, $$t_1 - \frac{h}{w} = t_2$$

where t_1 = temp. at flow junction °F.
w = weight of water flowing through the circuit pipe in lbs. per hr.
h = heat emitted by radiator in B.T.U. per hr.
t_2 = temp. at return junction °F.

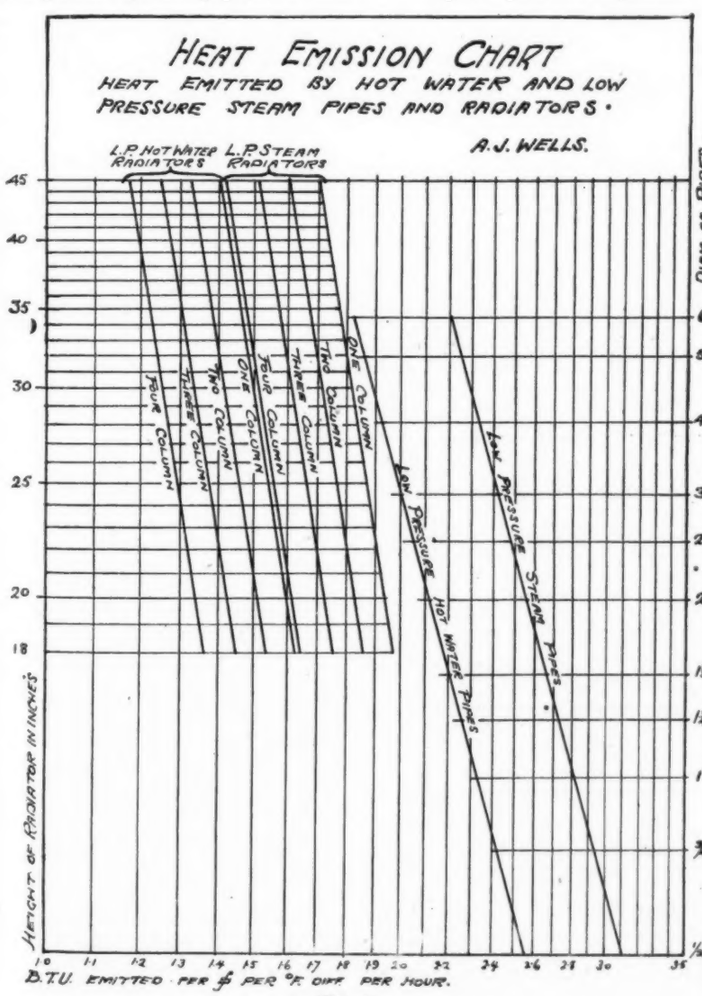

HEAT EMISSION CHART
HEAT EMITTED BY HOT WATER AND LOW PRESSURE STEAM PIPES AND RADIATORS.
A.J. WELLS.
L.P. HOT WATER RADIATORS
L.P. STEAM RADIATORS
HEIGHT OF RADIATOR IN INCHES
DIAM. OF PIPES
B.T.U. EMITTED PER ft² PER °F. DIFF. PER HOUR.
FOUR COLUMN
THREE COLUMN
TWO COLUMN
ONE COLUMN
LOW PRESSURE HOT WATER PIPES
LOW PRESSURE STEAM PIPES

Fig. 2.

Consider Fig. 1. There are four radiators on a one-pipe circuit, emitting 10,000, 8,000, 12,000 and 10,000 B.T.U. per hour respectively. The circuit pipe is conveying 1,000 lbs. of water per hour and the temperature at the flow connection of radiator No. 1 is

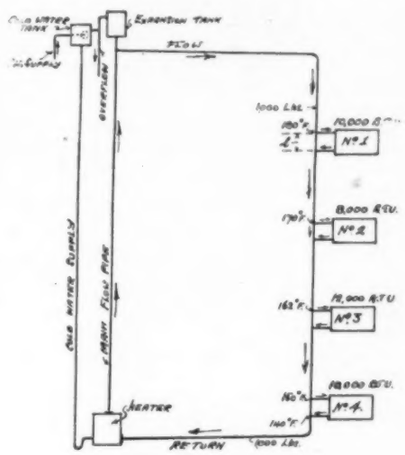


Fig. 1.

180° F. Calculate the flow temperatures of each radiator assuming that the circuit pipe emits no heat.

Flow at Radiator No. 1 = 180° F.
" " " No. 2 = $180 - \frac{10000}{1000} = 170°$ F.
" " " No. 3 = $170 - \frac{8000}{1000} = 162°$ F.
" " " No. 4 = $162 - \frac{12000}{1000} = 150°$ F.

Temperature at end of circuit pipe will be $180 - \frac{40000}{1000} = 140°$ F.

It will be noted that the flow temperature of Radiator No. 4 is only 10° F. above the return temperature of the circuit pipe. As before stated, the size of each radiator is controlled by the heat emitted per sq. ft. corresponding to the mean temperature between the flow and return connections. Now, there are two methods for calculating one-pipe radiators,

(1) by assuming a constant temperature drop in each radiator;

(2) by assuming a constant average temperature in all radiators.

Let us consider the first method and apply it to the above example. Suppose we decide that each radiator shall cool the water through 40° F., then the mean temperature of each radiator will be:—

Radiator No. 1, 180°–140° = 160° F. mean
" No. 2, 170°–130° = 150° F. "
" No. 3, 162°–122° = 142° F. "
" No. 4, 150°–110° = 130° F. "

It is now possible to determine the quantity of heat emitted per sq. ft. corresponding to the above temperatures. By referring to the "Heat Emission Chart" (Fig. 2) we can obtain the B.T.U. emitted per sq. ft. per °F. difference per hour for various types of heating surfaces. Let us assume that the radiators are of the two column type, 32 in. high, and the surrounding air is at 60° F.; the corresponding transmission co-efficient is 1.4 B.T.U., which gives the following emission values:—

Radiator No.	Mean temp.	Temp. diff. water—air.	Emission per sq. ft. B.T.U. per hour.
1	160° F.	100° F.	140
2	150 "	90 "	126
3	142 "	82 "	115
4	130 "	70 "	98

If the drop in temperature of the circuit had been disregarded, as it often is, and a uniform emission of 140 B.T.U. per sq. ft. used, the last three radiators would have been too small.

By method No. 2, the end radiator on the circuit determines the mean temperature of the other radiators. Let us decide upon a drop of 10° F. for Radiator No. 4; this will produce a mean temperature of 145° F., and if all radiators are to have the same mean

temperature we must arrange the temperature decrease for each radiator, as follows:—

Radiator No.	Mean temp.	Flow temp.	Temp. decrease between F. and R.
4	145° F.	150° F.	10° F.
3	145 „	162 „	34 „
2	145 „	170 „	50 „
1	145 „	180 „	70 „

The heat emission for all radiators will, therefore, be 1.4 (145–60)= 119 B.T.U. per sq. ft. per hour, and only by this method is it possible to use a constant emission value for each radiator.

The following table gives an analysis of the two methods for determining the size of one-pipe radiators, and also the wrong method usually adopted:—

Radiator No.	1	2	3	4	Total
B.T.U. emitted ..	10,000	8,000	12,000	10,000	sq. ft.
Method (1)—					
Mean temp.	160° F	150°F	142° F	130° F	
Emission per sq. ft. ..	140	126	115	98	
Size of radiator sq. ft.	72	63	104	102	341
Method (2)—					
Mean temp	145° F	145° F	145° F	145° F	
Emission per sq. ft. ..	119	119	119	119	
Size of radiator in sq. ft.	84	67	101	84	336
Wrong Method—					
Assumed mean temp.	160° F	160° F	160° F	160° F	
Assumed emission per sq. ft.	140	140	140	140	
Size of radiator in sq. ft.	72	57	86	72	287

From the above figures it will be seen that so far as the total heating surface is concerned there is practically no difference between methods Nos. 1 and 2, and that it is merely a matter of correct distribution. But if the wrong method is used the amount of heating surface provided is insufficient by about 50 sq. ft., which means that only 85 per cent. of the required heating surface is supplied.

Another curious feature of the one-pipe system is that the force which circulates the water through the radiators is quite separate from the circulating pressure of the main and circuit pipes. The size of radiator connections, therefore, depends upon the circulating pressure produced by the difference in density between the flow and return connections, or the circuit pipe and mean density of water in the radiator.

The radiators shown in Fig. 1 should be calculated according to the following equation:

$$Cp = {}_{12}l \left(\frac{\frac{D_1 + D_2}{2} - D_f}{D_m} \right)$$

Where Cp = Circulating pressure in inches of water.

l = vertical distance in ft. between flow and return connections.

$\frac{D_1 + D_2}{2}$ = mean density of water in radiator

D_f = Density of water in circuit pipe

D_m = Density of manometer water.

It will be noted from this equation that the velocity of water in the circuit pipes has no effect upon the flow of water through the radiators. This curious feature is one of the reasons why the one-pipe system is generally unsuitable for accelerated work, for although a pump or accelerator decreases the size of the main and circuit pipes, it has no effect on the size of the branch connections to the radiators, and the sizes remain the same as when the system is working by "gravity." It is not unusual for a 1 in. circuit pipe to supply a number of radiators having 1¼ in. connections.

Atherton Housing Scheme.

The Atherton District Council has instructed Messrs. J. C. Prestwich & Sons, architects, of Leigh, to proceed with its housing schemes on the Hag Fold and Hamilton-street sites.

HOUSING AND TOWN-PLANNING NOTES.

Buckie Housing Scheme.

The Buckie Town Council is now taking steps for the commencement of the first fifty houses under the local housing scheme. The contractors are as follows:—Builder, C. Macdonald, Dyce; joiners, Banffshire Master Joiners' and Carpenters' Association; slaters, John Barclay & Son, Buckie; plasterer, Alex. Glass, Buckie; painter, Alex. Ferguson, Peterhead; plumbers, William Ritchie & Son, Peterhead; roads and sewers, John McAdams & Sons, Ltd., Aberdeen; water mains, William Ritchie, Peterhead.

Insurance of State-aided Houses.

The Minister of Health has had under consideration the question of insurance against fire of the houses erected by local authorities under assisted housing schemes, and it has been decided that, in accordance with the general practice of the public service, no actual insurance should be effected against the risk of any loss which, it it arose, would fall upon the Exchequer. In future, therefore, in the case of any assisted housing scheme in respect of which Exchequer subsidy is payable, no insurance should be effected against fire of any houses included in the scheme, so long as they remain the property of the local authority, and generally no charge for fire insurance premiums must be made in the accounts of such an assisted scheme. In the event of a fire occurring in any house or houses, for which in consequence of this ruling no fire policy has been taken out, the approved cost of making good damage by fire would be admitted as a charge against the assisted housing scheme. The amount of such expenditure would be written off by means of a special annual Exchequer subsidy, payable for a number of years to be fixed by reference to the degree and nature of the damage.

This procedure is not applicable in the case of the assisted housing scheme of any local authority the yearly deficit on whose scheme does not or is estimated not to exceed the produce of a penny rate. As no Exchequer subsidy would be payable in such a case, the risk of loss by fire is to be borne solely by the local authority, who should take steps to insure against the risk in the ordinary way. In these cases the annual fire insurance premiums will be properly chargeable in the revenue account of the assisted scheme.

In all cases where fire insurance policies have already been taken out by a local authority in respect of houses in an assisted scheme, the payments of premiums already made will be admitted as charges in the assisted scheme revenue account, but generally such policies should not be renewed on their expiry.

WEEKLY HOUSING RETURN.

Progress of housing schemes up to October 9: Schemes submitted, 11,155; approved, 8,237. Lay-out schemes submitted, 6,327; approved, 5,171. House-plans submitted, 263,211 houses; approved, 248,395. Tenders submitted, 162,065 houses; approved, 147,678. Contracts have been signed for 111,883 houses.

Schemes dealt with during week ended October 9:—Schemes submitted, 24; Lay-outs submitted, 51; approved, 48. House-plans submitted, 1,705; approved, 2,358. Tenders were submitted for 1,893 houses and approved for 2,186. These schemes included the following:

Applications.

SITES.

Urban.—Prestwich, 16 acres; Rothwell, 13.76.

LAY-OUTS.

Urban.—Bishop's Castle, Carmarthen, Clayton, Kingsbury, Kingston-upon-Hull, Liskeard, Stamford.

Rural.—Boston, Bridport, Bromyard, Cerne, Chipping Sodbury, E. Dean and United Parishes, E. Preston, Gloucester, Honiton, Isle of Wight, Mere, Meriden, Nantwich, Okehampton, St. Faiths, St. Thomas, S. Shields, Spilsby, Stow-on-the-Wold, Tisbury, Wangford, W. Dean, W. Lancashire, Whiston, Whittlesey.

County Councils.—E. Sussex, Lancashire.

HOUSE-PLANS.

Urban.—Aberavon, 3 houses; Adwick-le-Street, 322; Barry, 8; Battersea, 12; Bedwas and Machen, 128; Birkenhead, 3; Bishop's Castle, 26; Darlington, 30; Esher and the Dittons, 42; Fleet, 6; Hetton, 188; Hexham, 68; Kingsbury, 56; Kingston-upon-Hull, 57; Liskeard, 66; Liverpool, 290; Llanelly, 8; Norwich, 20; Penzance, 50; Queensbury, 16; Saddleworth, 24; S. Crosland, 10; Tiverton, 4; Warrington, 81.

Rural.—Axminster, 4 houses; E. Preston, 16; Honiton, 4; Huntingdon, 4; Isle of Wight, 8; Macclesfield, 12; Malmesbury, 38; Mere, 6; Nantwich, 8; Newport Pagnell, 8; Norton, 13; St. Faiths, 6; St. Thomas, 8; Stow-on-the-Wold, 4; Tisbury, 2; Wangford, 6; W. Ashford, 2; Westbourne, 4; Wokingham, 4; Woodbridge, 16.

County Councils.—E. Sussex, 2; Lancashire, 4.

Approvals.

SITES.

Urban. — Tyldesley-with-Shakerley, 20.77 acres.

Rural.—Barton-upon-Irwell, 10.42 acres; Rotherham, 17.

LAY-OUTS.

Urban.—Bishop's Castle, Caerphilly, Clayton, Denton, Kingston-upon-Hull, Maryport, Tiverton, Warrington.

Rural.—Broadwoodwidger, Bromyard, Chipping Sodbury, Cricklade and Wootton Bassett, E. Dean and United Parishes, E. Preston, Fleet, Houghton-le-Spring, Launceston, Malmesbury, Mere, Meriden, Nantwich, Okehampton, Pately Bridge, St. Faiths, Spilsby, Tisbury, Wangford, W. Ashford, Whittlesey.

County Council.—Lancashire.

HOUSE-PLANS.

Urban.—Adwick-le-Street, 322 houses; Battersea, 18; Beaconsfield. 52; Bishops Castle, 26; Bournemouth, 13; Crewe, 188; Darfield, 149; Esher and the Dittons, 42; Hexham, 68; Kingston-on-Thames, 4; Kingston-upon-Hull, 57; Market Rasen, 12; Maryport, 68; Northfleet, 124; Norwich, 20; Penzance, 50; Queensbury, 16; Saddleworth, 24; S. Crosland, 10; Stalybridge, 400; Tiverton, 12; Tottington, 38; Warrington, 81; Weymouth, 150.

Rural.—Amersham, 4 houses; Axminster, 4; Broadwoodwidger, 4; Chepstow, 12; E. Preston, 16; Haltwhistle, 139; Honiton, 4; Huntingdon, 4; Launceston, 6; Malmesbury, 10; Mere, 6; Nantwich, 8; Norton, 13; Pateley Bridge, 14; St. Feiths, 6; Stow-on-the-Wold, 4; Tisbury, 10; Wangford, 6; W. Ashford, 2; Woodbridge, 16.

County Council.—Lancashire, 2.

Tenders Approved.

Urban.—Abertillery, 8 houses; Acton, 8; Alderley Edge, 28; Ammanford, 100; Ashford, 69; Barking Town, 8; Biggleswade, 188; Bodmin, 20; Coalville, 4; Goole, 16; Kingston-upon-Hull, 57; Leominster, 40; Llanelly, 56; Long Eaton, 10; Market Harborough, 8; Newcastle, 50; Newport Pagnell, 8; N. Walsham, 14; Nottingham, 98; Plymouth, 48; Radstock, 40; Rotherham, 6; Sutton, 72; Turton, 56; Uttoxeter, 154; Walthamstow, 100; Wigston Magna, 24; Worsley, 138.

Rural.—Axminster, 2 houses; Banbury, 14; Blaby, 30; Bradfield, 16; Brixworth, 22; Chirk, 136; Conway, 14; Dorking, 38; Easington, 88; Huntingdon, 4; Llantrisant and Llantwit Fardre, 50; Longtown, 20; Macclesfield, 12; Oswestry, 20; Penybont, 74; Riccall, 18; Rotherham, 60; Skegby, 46; Taunton, 8; Truro, 8; Yeovil, 12.

THE BUILDING TRADE.

THE ONLY WAY.—II.

BY MAJOR E. A. PELLS, R.E., A.M.I.E.E., M.S.M.A.

Management Methods.

WHEN we are setting out to initiate improvements of any kind with which we are intimately connected, it is always best to begin with ourselves. So, therefore, before we consider the question of obtaining reliable data upon which the planning and improvements in methods for future work are to be based we had best consider how we can improve plant and methods from the management side, so that studies of times and effort expenditure may be made under the best possible conditions.

Management is the function of handling human nature in conjunction with time, materials and plant. It will be noticed that human nature is placed first, and is undoubtedly the most important factor, but as I propose to deal with the various factors in efficiency in a further article consideration will here be restricted to the question of management as affecting the provision of the conditions under which work is to be carried out.

Builders' plant, in the majority of cases, is of practically the same design as that used by our forefathers of over a thousand years ago. Just consider what would be said of any industry which refused to alter its methods and improve its plant wherever possible! Many are continually improving. In one particular instance the machinery installed one year was scrapped the next, because some fresh and better way had been discovered. The big point which has to be considered is that this most drastic step paid not only the employer but the buyer of his products, and, further, brought greater prosperity to the employees of this particular firm. One has only to look round to find that the necessity for improvement is appreciated by many; even in agriculture the old methods are being replaced with tractors and mechanical methods of doing many jobs which have hitherto been done entirely by hand. So the building contractor must turn to his job with the intention of seizing every improvement that is possible, so that he can say to his workmen: "I have done my part of the job, and I expect you to do your part."

The waste caused by the present method of scaffolding is enormous. The fact which first struck Gilbreth and caused him to think deeply on the matter was that the bricklayer is only able to work at a comfortable height for one course at each position of the platform; in consequence, for every other course he is making movements which entail a great waste of energy, as he has to lift not only a brick and trowel of mortar but also about 140 pounds of himself, and only those who have tried it can say how fatiguing this back-bending is. Then there are the numerous little delays and consequent waste of valuable time while the scaffolders make necessary adjustments. The obvious remedy appears to be, therefore, some kind of scaffold so constructed that the platform can be regulated so that the bricklayer is always at the correct height in relation to the work he has to do, and which can be made higher or lower with a minimum of delay.

Then the question of the supply of materials to the workmen has to be considered. Is this done in the best way? It may appear to those who have grown up with the method that no better way can be evolved, but I hope to show in later articles of this series that it is not always the obvious that gives the most room for improvement. It is only by the careful collection of data as to what is happening, and the concomitant analysis of this data, that will enable an employer to get more work finished with a lesser expenditure of energy and time on the part of the operative. Before a standard can be arrived at as to what constitutes a fair day's work the builder has carefully to consider whether he has carried out as far as possible everything that he should do to make the conditions under which his men work the best possible in view of present-day knowledge.

Finally, the worker must be treated quite openly. In introducing improved methods the general question of the good of the community at large should be ever kept in view, and not the personal profit of any individual. For the ability of a community to pay wages with a high purchasing power—which is not merely high wages only—depends more upon the avoidance of waste than simply upon harder work.

ELECTRICITY IN SMALL HOUSES.—IV.

HEATING, COOKING, AND VENTILATION.

So far we have dealt only with the use of electricity for lighting—its earliest application in the domestic ménage—but nowadays this is far from its most important and profitable function; artificial light is required for the most part only in the hours of darkness, and there are numerous uses for electricity in the household which are subject to no such limitation. Chief among these, at the moment, are those named at the head of this article, though in some respects the labour-saving properties of electrical methods may prove in the near future to be still more valuable. Of the latter we shall speak later, but we may, in passing, point out that, whilst electric cooking and heating do not directly replace manual labour, they are unquestionably labour-saving in that they obviate the necessity for a great deal of menial work, since they give off no fumes, produce no ashes, and are independent of the coal-scuttle and all that it implies. Moreover, they need no chimneys, and therefore there is no chimney-sweeping to be done.

It must, however, be admitted at once that for the general heating of a house in the winter the electrical method cannot compete in point of cost with heating by gas—still less with coal; it can only be considered from the economic point of view in connection with short-period or local heating, such as the heating of bathrooms and bedrooms whilst dressing or undressing, warming the breakfast-room, or bed-warming. Heating a whole room in cold weather is not the function of the electric radiator, but we would emphasise its value to an individual engaged in sedentary work; it is easily proved by trial that personal comfort by no means depends upon the temperature of the atmosphere or furniture in a room—it is attained if the continual loss of heat by the body is made good by radiation from a source of heat external to the body, whilst the air is not allowed to become stagnant. Consequently, one can be perfectly comfortable whilst sitting in a room at a temperature as low as 40° F., provided that a radiator taking one kilowatt is directing its rays towards the person from a distance of three or four feet.

It follows that the electric radiator for this and similar purposes should be a true *radiator*, throwing its heat mainly in one direction—not a *convector*, which heats an ascending current of air; the latter type has its uses, but the true radiator is of the high-temperature type, with red-hot heating elements, and is often provided with reflectors which assist in concentrating the heat in the desired direction. For most purposes a three-kilowatt radiator is desirable, with three "heats"—taking one, two or three kilowatts as required. Larger and smaller apparatus are made, but less than one kilowatt is of little use. The radiator should be readily portable—some are made mainly of aluminium—so that it can be carried from room to room, and should be provided with a length of flexible and a plug, corresponding wall-sockets being fixed in each room where it may be used. It should never be connected to a lamp-holder.

Many other types of heating apparatus are made—foot-warmers, bed-warmers, food-warmers, even electrically heated mats or carpets. Electrically heated towel-rails and gown-stands, water heaters, hair-dryers, hot-cupboards for linen, etc., are available, but we can do no more than mention them here. They are all as directly applicable to a small house as to a large one, the only condition to be fulfilled being that the tenant has the means to purchase them and use them.

Turning to electric cooking, we find an equally lavish variety of appliances at command. The most important item is, of course, the cooker which takes the place of the kitchen range. This usually comprises an oven, a grill, and one or more boiling plates, and is a fixture. The switches by which it is controlled should be mounted upon the cooker, together with the fuses (separate fuses for each circuit) and pilot lamps to indicate which portion is in use. The whole should be controlled by a main switch mounted on the wall. Points to which attention should be given in selecting a cooker are the following:—The heating elements should be of standard pattern, so that they can readily be replaced without skilled attention; the connections should be rigid and so insulated that short-circuits will not occur through expansion or contraction, or deterioration of the insulating

material; every part should be accessible for cleaning; it should not be possible to receive shocks by accidental contact with the live conductors, or to fuse forks, etc., by touching the heating elements with them; the oven should be well heat-insulated; the boiling-plate elements should not be liable to damage through spilling liquids, etc., on them. All these conditions can be fulfilled, and in some patterns are fulfilled. An excellent improvement recently brought out is the introduction of a boiling pan permanently mounted on the cooker (but removable); this is very much more efficient than the ordinary boiling-plate, and lends itself to steaming vegetables, etc. A great advantage of the electric oven is that it is completely closed, so that the viands do not dry up, and odorous fumes do not escape into the room.

Next in importance to the cooker are the various devices for toasting, grilling, boiling, keeping food warm, etc., on the breakfast table, whose name is legion. An electric kettle with self-contained heating element is a most handy appliance, and, like many other small cooking apparatus, can be coupled to a lamp-holder with safety. It may be suggested that such things will find no place in an artisan's dwelling, on account of the cost to install as well as to run, but this is an error; a large number of houses of this class are actually being equipped with a cooker, an electrically heated copper for washing clothes, and electric radiators, at prices competitive with any other methods (hot water is supplied by a boiler behind the fireplace in the living room). One reason for this is the saving, estimated at £20 per house, due to dispensing with chimneys in all but one or two rooms. It is certain, therefore, that electricity is not beyond the means of the working class, and it is equally certain that that class is as much entitled to enjoy the benefits of electrical methods as any other. Where no servant is employed the use of electricity goes far to lighten the burden of the housewife.

As regards ventilation, modern investigations have proved that a great deal of misconception has prevailed in the past under this head. The headache that one gets in a crowded room is not due to contamination of the air, but to its becoming stagnant and lifeless; directly the air is set in motion (without changing it) in such a room, the feeling of lassitude departs. We do not advocate the closing of ventilating apertures—far from it; we merely wish to emphasise the value of stirring up the air in a room, which, it has been shown, gives it freshness, and this can best be done with electric fans, which are noiseless if properly made, and easily regulated to give the desired strength of current of air. In the Tropics these fans form a large proportion of the load on the supply mains in the daytime, and take the form of propellers turning in a horizontal plane near the ceiling; for our climate the ordinary vertical fan is more suitable, which can be carried about and turned in any direction; it takes only a quarter of a unit per hour, and can be coupled to a lamp-holder.

Where heating and/or cooking apparatus are installed, the wiring must be suitably proportioned, and the use of an electricity meter is essential, as a considerable amount of electrical energy will necessarily be used, so that a contract rate is inapplicable.

THE POSITION OF THE BUILDING TRADE.

We have received the following communication from Mr. J. E. Yerbury, Lic.R.I.B.A., in reference to recent correspondence in our columns:—

I have been much interested in the correspondence on this subject in issues of *The Builder* since September 17 last. On September 17 your "Well-informed Correspondent" raised many questions and set out some obvious truths. May I take a few points from his contribution and attempt to show a way to the end he desires?

Your correspondent says:—Unless a spirit of unity is shown by the rank and file it will be difficult for the leaders of the building trade to extricate it from the serious position it is in at present. Now, Sir, this statement alone raises several questions: (*a*) Who are meant by "rank and file"? (*b*) Who are the "leaders of the building industry"? (*c*) What are the serious problems to be dealt with? The context seems to imply that your correspondent refers to the "rank and file" of employers, and means by "leaders of the building industry" the big contractors who guide the employers' associations. As he goes on to say that "employers are attacked from all quarters and there is no concerted action to combat the situation," it would also appear that he has in mind rather the defence of the contractor than a real settlement between employer and employed.

To my mind the "rank and file" would include the architect and surveyor, the builder and contractor, the speculating builder, all tradesmen employed in building work, the builders' merchant and manufacturer and their employees, and the consumer. "Leaders of the building industry" should be architects and surveyors, building contractors and other masters, and all employed in building works, as represented by the trade unions.

The first serious problem is to arrive at unity in the ranks of the separate classes engaged in the work of building. Architects and surveyors are at the present moment making a great effort to unify the profession, and it is up to every man to do his utmost to bring this effort to a successful issue at the earliest date possible. Employers have their own associations, and I would, with all deference, suggest to those associations that they should so set their house in order that they may in future be really representative of all sections of the building trade. In the past they have been far too liable to consider policy from the point of view of the big business and to neglect the position of the smaller men, while ignoring the speculating builder. For all practical purposes of conference the employees are united, and if the architects succeed in their attempt and the builders' associations can become representative of the trade, it will not be impossible to solve the problem before us.

I am convinced that the building industry is quite able to settle all the serious problems before it if it can only first establish general good will. Wages, unemployment, pensions, output, profits, prices, and all details of management could be disposed of and contracts made for the next seven years if we could only get rid of the suspicion created by ultra-conservative employers still hoping to kill trade unions, and the revolutionary pseudo-labour leader out on the make. Wages require adjustment to meet the needs of the family, and should be fixed to give a proper standard of living to the man with a large family; the levy on wages made to meet unemployment and pensions should be very heavy on the single man, and very light on the man with many children. With the best output possible by those working in the trade there is no doubt that prices obtainable would cover the needs of the industry.

Your correspondent goes on to say: (1) Guilds are being set up to oust the building trade employer; (2) tenders sent in by Guilds are ludicrous; (3) tenders are so much lower than those of employers of standing that it is evident an increase in production is anticipated, proving conclusively the fallacy of the statement that there is not a restriction of output; (4) he then asks the question: "Will the workman under the Guilds prove that he has not in the past given his best output; or will he, through fear of giving his case away, continue 'ca' canny,' and lead the Guilds to inevitable loss?"

To this line of argument allow me to suggest that (1) the forming of a Guild may not be in order to oust employers, but to fill the gap the employer has left open; (2) tenders sent in by Guilds are not necessarily ludicrous because much lower than those of firms of standing; (3) a co-operative Guild might surely legitimately expect greater output than a private firm; and by obtaining it would not prove "ca' canny" to be practised on work for private employers; (4) whether the workmen under the Guilds will be able to justify the tenders sent in I cannot say; but success or failure will not prove anything, one way or the other, with regard to restriction of output.

For the purpose of argument trade unions are not likely to admit restriction any more than employers are likely to admit profiteering. The employers know (and, of course, the men know) that there is restriction. The men know (and, of course, the masters know) that there is profiteering. Each blames the other for doing what he himself is out to do. There are a few exceptions, to prove the rule, in every class, but in the main everyone is bending the knee to the Golden Calf. I am in entire agreement with your correspondent when he says, "The Ministry of Health is drifting from muddle to chaos." I will undertake to say that there is no one unbiased man in the whole country who knows anything about housing who does not agree. The Housing Department of the Ministry of Health is the outstanding failure in a whole realm of muddle. It has deceived and demoralised the country. Does it know that every £1 spent on housing by local authorities costs the country 30s.? Housing must be removed from the Ministry of Health.

Your correspondent thinks the workman says: "We are in the sun and mean to stay there," and "Instead of ten men to one job we prefer ten jobs to one man." Not a bit of it. All the average workman knows is that he does not work as hard as he used to, gets more for doing less, and has more time to spend it in. Having denied him education, the country now expects him to think like an educated man, and is surprised that he cannot do it. Government departments sent him literature during the war convincing him that he was rather a fine fellow; and after the war they gave him 29s. per week (with something for wife and children) not to do anything, while he could see many things about him which required doing. He saw little men and little firms grow rich in a day; he saw carelessness and waste by Government departments, and by local authorities; he still sees good material scrapped and the country's assets wasted. He doesn't want to restrict output, but he doesn't want to work in a country where they can afford to pay him not to work, while work is under his nose.

The question of a guaranteed week is a big one and difficult, but it is one which must be faced. To the more thoughtful men, with families, it is a source of continual worry not to know how to finance the home; at the best, even at present rates, the man with a big family has a very hard task to make both ends meet, and if employers could for a time put themselves in the place of the employee they would find a way to settle this question.

The point raised with reference to the favoured few contractors is one which members of the employers' federation should take up. At the same time they should inquire into the form of contract with the Ministry which allows favoured firms to pay "impossible wages" to attract men from other firms. Everyone knows it is done, but those con-

cerned do not speak plainly enough; name the favoured firms and let public opinion make itself felt.

The statement that shortage of labour is accounted for by the war is not correct as far as the building industry is concerned. I have already pointed out in your columns that the numbers employed in building had fallen before 1914. Instead of an annual increase of some 200,000 there had been, in fact, an annual decrease in the numbers employed on building the real reason being that the cost of building had increased to such an extent that for ten years before 1914 it was impossible to build working-class cottages at a profit; therefore, the small speculators and investors all over the country had stopped building. The Finance Act had very little to do with it, and would have had still less but for the political capital which was made by party propaganda.

The next point dealt with is the "extraordinary fact" that the good mechanic is willing to come down to the level of the bad. It is extraordinary that in a civilised country in the twentieth century A.D. this should be the case; but does your correspondent suppose that this "extraordinary fact" exists in the ranks of the working classes only? In Government departments, public bodies, in private firms, the same thing is seen in all classes and ranks; and it is futile to pretend that restriction of output is a particular evil existing in the working man alone, or that he is the only one who knows what "ca' canny" means. The fact is the strain of war has made us susceptible, and a feeble Government has demoralised us.

I am again at one with your correspondent on the question of propaganda. If the Board of Trade statistics, Government blue books, and reports on industrial affairs generally could be expounded and explained by men in sympathy with the education of the masses of the people, much might be done.

The writer of the article inquires: "What is the cost of the establishment charges of the Ministry of Health per house?" This is a question which might well be put in the House of Commons. The answer would probably stagger the country. But the country appears to be quite apathetic; the facts of the housing muddle are plain enough for he who cares to read, but nobody cares. At first the Ministry insisted upon the impossible house, described as "homes for heroes"; when it found it impossible to fulfil the promise, it began to cut the "homes for heroes" into doll's houses, and finding even these too expensive it cut again, until in some places men have refused to work on the schemes and in others the local authority has refused to have anything to do with such houses. Well-conceived plans of local authorities have been altered to meet the necessities of the Ministry, until those responsible for them cannot recognise the original plans and have filed two sets of plans, one to show what might have been and the other what has been forced upon them. A local authority is forced to build a house (which is a mere doll's house) at a cost of £1,000 with the certain knowledge that the rent obtainable cannot exceed one-third of a proper economic rent. The rent, rates and taxes, insurance and maintenance of the £1,000 house cannot be met at less than 46s. 6d. per week. The inclusive rent obtainable is 16s. The balance of 30s. 6d. per week is met by the local authority to the extent of a penny rate—say 6d. per week—leaving the Treasury to find 30s. per week per house, or £78 per annum. £78 × 500,000 houses promised = £39,000,000 p.a. = £780,000,000 at 5 per cent., or for the one million houses required = £1,560,000,000. And we are told that the country's finances are crippled!

Mr. Keen is as surprised as your other correspondent that a good workman should be "content" to receive the same pay as the bad; but surely in every walk of life one sees the same thing, with exactly the same amount of "content"! When the time comes that every man willing to work is assured of a decent wage without fear of unemployment, and an old age without fear of the workhouse, then perhaps we shall also arrive at grading and payment by results; but at the present time trade unions are not likely to do anything which might lessen the number of their members, and employers will not grade up from the present minimum, although it would, I think, pay to do so with a number of men on every job.

Mr. Newbold raises a point which statesmanship has deliberately overlooked, that is the bitterness created in the ranks of the professional classes (who have suffered more than any other class) by the callous manner they have been treated on every hand because they are not united for self-defence. No profession, I venture to think, has suffered more than that of architecture. Labour and vested interest get all the attention because they make government impossible if they do not receive what they demand; but the middle classes, "the backbone of the country," suffer in silence, cannot organise, eat the sour grapes, and are sacrificed on the altar of the god mammon by the worshippers at the shrine of the golden calf. The medical profession is organised, and so is law to a lesser extent. Architects are now making an attempt to unite; and if the other professions make the same effort and all are successful the time may come when the brains of the country may have some voice in the settlement of the country's affairs.

In the leading article of your issue for September 24th, entitled "Stagnation," you state some of the home truths which have to be faced, and many of your thoughts cannot be too often repeated. Let us look squarely at the unpleasant fact, that selfishness is the characteristic sign of reconstruction in this country, and that upon such foundation national life cannot be built. The limit has been reached; supply has overtaken demand; further demands, either for higher wages or increased profits, will hasten the inevitable ruin our policy of reconstruction is bringing upon the country.

RENT RESTRICTION.

AT the meeting of the Law Society recently held at Liverpool, Mr. E. A. Alexander read a paper on the Rent Restriction Acts, in which he commented very adversely on this legislation.

Mr. Alexander commenced his observations by saying that whilst some excuse could be found for the original measure no such excuse could be found for the continuance of the legislation, and he proceeded to criticise the Acts in detail.

As reported, perhaps the most novel of the points made by Mr. Alexander was the observation that one of the effects of this legislation was that it had caused the working man to imbibe false economic ideas. Rents had remained stationary whilst wages had increased enormously, and an increase of rent to an economic level was now outside the working-man's contemplation, and thus subsidised rents might easily become unavoidable with disastrous results to the Exchequer. He also referred to the discouragement that had resulted to private enterprise in the building industry.

We are in agreement with a great deal of the criticism expressed in this paper, but at the close of it Mr. Alexander is reported to have suggested a solution of the problem which must ultimately arise, and here we do not follow him.

The suggestion appears to have been an addition to all wages of a rent allowance which would be a charge on industry, the allowance to be paid into a pool by the employer and each employee to take out of the pool in proportion to his dependents.

Mr. Alexander admitted that the remedy might be a desperate one, but so he characterised the disease. That is the worst of legislation of this character; to many it may seem to call for desperate remedies, which, in our opinion, might well be worse than the disease.

Now that the Exchequer is pumped dry, many persons seem to think industries can bear any burden, and quite recently Mr. Bevin has suggested loading industry with many millions for unemployment pay.

It is, therefore, important to point out that industries are not hardy annuals which can be left to take care of themselves, but delicate plants. What severe weather is to delicate plants foreign competition is to many of our industries, and if they are to hold their own in the foreign markets, they cannot bear outside burdens. This is protection upside down.

We are already threatened with serious unemployment, and besides this our export trade must be maintained if our exchange is to be upheld and if we desire to restore our capital. This is the prime necessity.

As for the remedy to rent restriction, there is only one sound course to adopt which we have always advocated, i.e., to restore economic rents by a gradual but steady increase, and then to repeal the Statutes. The Government has already shown the way to do this by the method it has applied to the bread subsidy, and it is a pity it was not adopted in regard to rent restriction long ago, whilst wages were rising. In times of unemployment it is more difficult.

THE COAL STRIKE.

IT is hardly to be believed that national disaster of any duration will be brought upon the country in this critical period by a prolonged coal strike on the question in issue after all the reasoned discussion that has preceded it. Perhaps it was too much to expect that on the eve of a dispute a new system of payment by results would be adopted, but the same observation cannot apply to the offer to submit the whole question of the increase in wages demanded to an independent tribunal.

That a small body of men for a mere question of wages should be able to hold up a whole nation must also bring to the fore once again the question whether the right to strike, especially in what are known as "services of utility," should not in some way be restricted, as, for instance, by at least a preliminary reference to some independent tribunal. In our issue for April 12, 1912, we showed how this question was dealt with in some of our Dependencies, and in foreign countries, as a Yellow Book was then issued dealing with this question.

However this may be, we can only hope that wiser counsels may still prevail with the men, and that they will see that a prolonged strike must be disastrous to their own interest.

After the great war, the capital of the country is depleted and the funds out of which wages have to be paid must be built up gradually. A strike will further deplete this wages fund and will also send up prices all round, and the result can only be that the miners, in common with the whole community, will suffer severely in pocket.

The strike of 1912 lasted about five weeks, and in four weeks alone the miners lost an aggregate of 24 million working days. Wages were lower then, but this represented a loss to the miners of many million pounds and the unions' funds were depleted. At the present rate of wages it is easy to compute what a loss of 24 million working days will mean in money to the miners, without considering the loss in other trades.

We can only hope that all acrimony will be left out of this dispute and that the offer to submit the matter to an independent tribunal will be kept open throughout, but it must be borne in mind by the miners that every day a strike continues the position is altering for the worse and that any tribunal will have to consider the question of wages under very different conditions from those which prevailed before a strike was declared. It is surely now recognised in nearly all quarters that a resort to force should only be considered an extreme measure when all other methods have been tried, but a resort to force when an independent tribunal is offered is simply a claim on the part of the party aggrieved to be the sole judge in its own cause and to intimidate the nation.

THE COMMERCIAL MOTOR EXHIBITION.

THE International Commercial Motor Exhibition, which was opened by Sir Eric Geddes (Minister of Transport) on Friday last week, and which closes to-morrow (October 23), should be of interest to all who have adopted motor lorries as a means of transporting goods, or who contemplate doing so. The show is of special interest as it is the first of its kind held in this country since 1913, since when great strides have been made in the development of all kinds of motor vehicles and their accessories. The feature which distinguishes this from all previous shows is the presence of a large number of chars-a-bancs, with their brightly coloured body-work and luxurious upholstery.

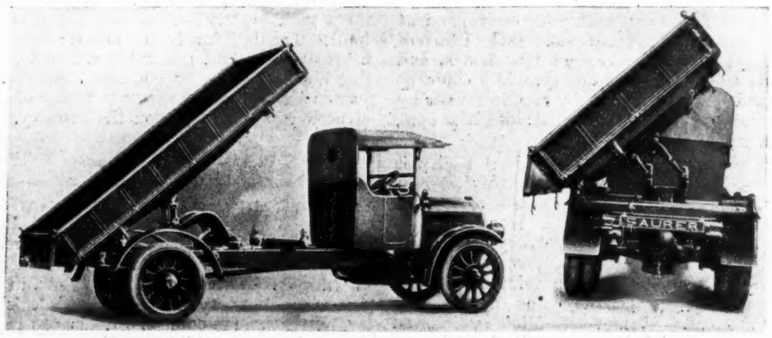
Many of the lorries exhibited contain features which will appeal to contractors, notably the tipping apparatus for rapidly unloading the vehicles. Among these the lorry illustrated on this page, shown by the Société Anonyme Adolphe Saurer, of Arbon, Switzerland, is adapted to tip on either side, or at the rear This is a five-ton lorry, with a 40-h.p. four-cylinder engine, with a bore of 110 mm. and a stroke of 180 mm. The speed of the engine is 1,000 revolutions per minute; the wheelbase is 4,500 mm.; single tyres, 1,030 mm. by 160 mm., are fitted to the front wheels, and twin tyres, 1,030 mm. by 160 mm., to the rear wheels. The speeds on the four gears are: First, 3.9 km.; second, 7.6 km.; third, 14.8 km.; fourth, 25 km. per hour. A further item of interest on this chassis is the direct bevel gear drive. A four-ton (net load) 40-h.p. tipping lorry is exhibited by Caledon Motors, Ltd., of Duke-street, Glasgow, a feature of which are the rounded corners of the body, which enable loads of material such as sand to be easily cleared out. The frame is of pressed high-tension steel, of ample strength for the load for which it is designed to carry. The engine has four cylinders, with a bore of 120 mm. and a stroke of 140 mm. The cylinders, which are water-jacketed, are cast in pairs, and the inlet and exhaust valves are on the same side and enclosed in dust-proof covers. The speed-changing gear is on the gate change system, all the speeds being operated by a single lever, the whole arrangement being in one unit with the gear box. The gear box is of the "Dux" patent type with all forward gears constantly in mesh; the various speeds are secured by engaging the operating wheels into internal tooth clutches, giving silent and instant engagement. The gears are four forward and one reverse, with speeds of 4, 8 11 and 16 miles per hour forward, and a reverse of 4 miles per hour. The transmission from the differential countershaft to the back axle is by a heavy roller chain. The wheels are of the hollow spoke cast steel type, with plain floating bearings; they are fitted with 4¼ in. solid tyres, single on the front and double on the rear wheels.

A special short tipping wagon for a load of 3½ tons is shown by Messrs. Walker Bros. (Wigan), Ltd., of Wigan. This is the "Pagefield" wagon, which has been specially designed and constructed with a short wheel-base and narrow track for operating in narrow or restricted passages, and is, therefore, well adapted for house to house delivery or collection. An engine-operated and mechanically-controlled tipping gear is fitted, handled by the driver alone, which ensures rapid discharge of the load. The tipping gear is of the vertical screw type provided with an arrangement which automatically disengages the driving mechanism of the screw at the top of the lift. On returning the body to the normal position at the end of the movement it is allowed to settle on the frame by its own weight, while the lifting units fall clear of the lifting brackets. A load of 3½ tons can be tipped at an angle of 60 degrees in about 30 seconds. The "Berna" tipping lorry, shown by British "Berna" Lorries, Ltd., of 169, Great Portland-street, W.1, is a power tipping lorry on a 5-ton chassis. The tipping hoist, which is driven from the gear box, comprises a horizontal screw spindle acting on a central point of the tipping body by means of a bell crank and articulated rod. The body frame rests on four swing brackets locked by a pin. For side tipping and rear tipping the corresponding lateral or rear swing brackets are locked. The maximum inclination for side tipping is 32 degrees, and for rear tipping 55 degrees; the time required for tipping is about 10 seconds for a sideways discharge, and about 15 seconds for a discharge to the rear. Automatic stops are provided for the highest and lowest tipping positions. The tipping motion is started by means of a hand lever from the driver's seat, and can be easily checked. Messrs. Dennis Bros., Ltd., of Guildford, are exhibiting a 5–6 ton 40-h.p. tipping wagon. The body is framed in English oak, well ironed up, with panels of cotton wood and a bottom of pitch pine. The inside dimensions are:—Length, 11 ft. 6 in.; width, 6 ft. 3 in.; depth, 2 ft. 6 in.; additional 6 in. detachable extension pieces are fitted to the sides and front. The tipping gear is of the "Wood" hydraulic hoist type, which automatically stops at the highest position and also at a normal position. Messrs. Dennis-Portland, Ltd., of 214, Great Portland-street, W.1, are showing a 30-h.p. vehicle for a net load of two tons, fitted with a standard lorry body with cab, side doors and hinged sides. The well-known "Karrier" vehicles are shown by Messrs. Karrier Motors, Ltd., of Huddersfield, including a 3 to 4-ton lorry which may be adapted for any purpose, and a road sprinkler, sweeper and refuse collector combined. The latter vehicle, as it travels over the road, sprinkles sufficient water to slack the dust, sweeps a width of road surface 7 ft. 6 in. wide, and automatically picks up the sweepings, depositing them in a central hopper. Messrs. Leyland Motors, Ltd., of Leyland, Lancs., are showing a motor fire-engine and a 4-ton chassis fitted as a brewer's dray. One-ton, 3-ton and 7-ton chassis are exhibited by Messrs. Renault, Ltd., of West Brompton, S.W.

A good selection of steam wagons of sizes to suit various purposes are on view. Messrs. Atkinson & Co., of Preston, Lancs., are showing a six-ton steam wagon with a tipping gear operated by a separate small steam engine. The small engine can be reversed for raising or lowering the body, but, to avoid the complexity of double eccentrics and link motions, hollow piston valves, without any lap, are used, and steam can be admitted either round the centre length or at the ends of the valves by means of a central diverting valve operated by a lever. The body can be tipped and returned to its original position in about two minutes. Messrs. Clayton Wagons, Ltd., of Lincoln, are showing a five-ton steam wagon, with a mechanically operated end tipping body. The engine is of the 2-cylinder compound type with double high-pressure connection, which allows both cylinders to be operated by high-pressure steam when any great increase of power is required. Both cylinders are fitted with balanced piston valves; the boiler is of the locomotive type; the boiler feed pump is gear-driven from the crankshaft, and can be operated when the wagon is stationary; the tipping mechanism consists of an independent steam-driven motor geared to vertical screwed shafts, having nuts which are free to swivel in journals on brackets attached to the moving body; the wagon can be moved during the process of tipping when required, as in the distribution of road metal, etc. A five-ton rubber-tyred standard type steam wagon, fitted with a platform body, is on view on the stand of Messrs. Fodens, Ltd., of Sandbach, Cheshire. Messrs. Robey & Co., Ltd., of Lincoln, are showing a five-ton steam wagon, with standard frame, with an improved form of loco-type boiler and pressed-steel frame. The specification is as follows:—Cylinder 4 in. and 7¼ in. diameter by 7 in. stroke; revs., 430 per minute; boiler, loco type, round firebox, no stays, working pressure 200 lbs.; gear-driven feed pump; water-tank capacity, 140 gallons; fuel capacity, 4 cwts.; engine, compound overtype can be used as double high pressure; frame, pressed steel; road wheels, pressed-steel centres fitted with rubber tyres; brakes, shoe, acting on inside of each road-wheel rim; steering gear, worm and quadrant type; legal axle weights when loaded with 5 tons; wheelbase, 12 ft. 11 in.; overall length, 21 ft.; overall width, 7 ft.; road speeds, 8 and 4 miles per hour.

Five of the well-known "Sentinel" wagons are shown on the stand of Messrs. Sentinel Wagon Works (1920), Ltd., of Shrewsbury, viz., 5–6-ton and 3–5-ton flat platform steam wagons, 5-ton and 3½-ton steam tipping wagons, and a steam tank wagon. The 5-ton end-tipping wagon has a hydraulically-operated end-tipping body of 195 cub. ft. capacity, with inside dimensions of 13 ft. by 6 ft. 8 in. by 2 ft. 3 in. deep. The body sides are hinged at the bottom, and the back board is hinged at the top to allow of free discharge of the load. The front of the body is fixed, and the floor is lined with sheet steel. The 3½-ton wagon has inside dimensions of 11 ft. 6 in. by 5 ft. 8 in. by 1 ft. 9 in. deep, and is built on the same principle as the five-ton wagon. In both cases the tipping is accomplished by the "Sentinel" patent hydraulic system, which dispenses with pumps, gear wheels and screws. Water pressure is applied to a ram acting directly under the body, and the raising and lowering of the latter is done without jerk or strain. The tipping operation is performed by one man by means of a small cock, and the tipping and return of the body to the normal position takes about 2½ minutes. Messrs. W. Tasker & Sons, Ltd., of Andover, are exhibiting the "Little Giant" steam tractor and the "Little Giant" steam wagon. The latter has a capacity of five tons, and has three speeds and wheels fitted with solid rubber tyres. The Yorkshire Commercial Motor Co., of Leeds, are showing a 3-ton "Yorkshire" steam wagon, fitted with patent mechanically-operated end-tipping body, rubber-tyred wheels, and three-speed gear.

Electric vehicles are fairly well represented, many of them specially adapted for the use



The "Saurer" Tipping Lorry.

of local authorities. Messrs. Newton Brothers (Derby), Ltd., of Derby, show a 3½-ton electric vehicle with a body specially designed for refuse collection; the tipping gear is also operated by electric motor. This firm are also showing a motor generator for battery charging, a battery charging board, an electric tipping and truck motor, and a selection of motor parts. "Orwell" electric vehicles are on view on the stand of Messrs. Ransomes, Sims & Jefferies, Ltd., of Ipswich. These include a 3½-ton tipping wagon, a 2-ton chassis, and an electric elevating platform truck.

The Gallery is devoted to the exhibition of tyres and accessories, and many new and improved devices are on view. The tyre section is specially interesting as showing the development of the pneumatic tyre, which is now made in sizes suitable for the heaviest vehicles. The Michelin Tyre Co., Ltd., of Fulham-road, S.W., have a very comprehensive display, including large pneumatic tyres, wheels for heavy and light commercial vehicles, special hubs and spare parts, a lifting-jack, pressure tester, &c. Very large pneumatic tyres are shown by the Goodyear Tyre and Rubber, Co., Ltd. These are called "Giant" tyres, and are designed to carry any loads for which solid tyres are now used.

EXPORT CREDITS.

In a letter addressed to the President of the Board of Trade regarding the Government's Export Credits Scheme, the Federation of British Industries states that the fundamental principle of the Treasury advancing 80 per cent. (for a period up to 3 years) of the cost price of the goods to be supplied leaves 20 per cent. to be advanced by bankers of the manufacturing firm wishing to export. It seems superfluous to point out that bankers are exceedingly reluctant to advance this 20 per cent. even to old and favoured clients—when there are numbers of outlets for their funds in much shorter dated securities at profitable rates. The Federation, therefore, suggests that the Export Credit Scheme to be of any practical use should provide for advances to approved firms of 100 per cent., not 80 per cent., of the cost value. It is the policy under the scheme to oblige the exporter to finance 20 per cent. of the net cost price of the goods it is intended to export. Granted that the bankers (or, if the Federation suggestions are accepted, the Treasury) will provide the 20 per cent., the exporter is still forbidden to cover this risk by means of insurance. Why should the exporter not only run the risk of making no profit but the further risk of losing 20 per cent. of the net value he puts into the work?

It may be argued, says the Federation, that this obligation ensures the exporters only taking on sound business, inasmuch as business which is good enough for the Treasury to finance to the extent of 80 per cent. should be good enough for the profiting firm to finance to the extent of 20 per cent. But, the exporter is not necessarily a financial expert, and provided that he can find such experts who by insurance will assume for him this 20 per cent. risk, surely it reduces the Government liability by the intended amount, and still leaves the exporter with the more rational and legitimate risk of making no profit at all on his work. For these reasons the Federation strongly urges the Board of Trade to agree to the exporter being allowed, if he desires, to cover himself by insurance.

The Federation also urges that in cases of transactions with Governments great elasticity should be allowed with regard to the nature of the collateral security which His Majesty's Government insists upon. Finally, the Federation points out that the amount earmarked for this scheme was some twenty-six million pounds, and the amount drawn under it is a matter of some hundreds of thousands, which points conclusively to some inherent weakness in the scheme, which, in the opinion of the Federation, would be remedied by the adoption of their suggestions.

RATES OF WAGES IN THE BUILDING TRADE.

The following are the present rates of wages in the building trade in the principal towns of England and Wales. It must be understood that, while every endeavour is made to ensure accuracy, we cannot be responsible for errors that *may* occur:—

	Masons.	Bricklayers.	Carpenters, Joiners.	Plasterers.	Slaters.	Plumbers.	Painters.	Masons' Labourers.	Bricklayers' Labourers.	Plasterers' Labourers.
Aberdare	2/4	2/4	2/4	2/4	2/4	2/4	2/4			2/1
Accrington	2/4	2/4	2/4	2/4	2/4	2/4	2/4			2/0–2/0½
Altrincham	2/4	2/4	2/4	2/4	2/4	2/4	2/4			2/0–2/0½
Ashton-under-Lyne	2/4	2/4	2/4	2/4	2/4	2/5	2/4			2/0–2/0½
Barnsley	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½			1/11½
Barrow-in-Furness	2/4	2/4	2/4	2/4	2/4	2/4	2/4			2/0–2/0½
Barry	2/4	2/4	2/4	2/4	2/4	2/4	2/4			2/1
Bath	2/–	2/–	2/–	2/–	2/–	2/–	2/–			1/9
Bedford	2/–	2/–	2/–	2/–	2/–	2/–	2/–			1/9
Birkenhead	2/4	2/4	2/4	2/4	2/4	2/4	2/4			2/0½
Birmingham	2/4	2/4	2/4	2/4	2/4	2/5	2/4			2/1
Bishop Auckland	2/4	2/4	2/4	2/4	2/4	2/4	2/4			2/1
Blackburn	2/4	2/4	2/4	2/4	2/4	2/4	2/4			2/0–2/0½
Blackpool	2/4	2/4	2/4	2/4	2/4	2/4	2/4			2/0–2/0½
Bolton	2/4	2/4	2/4	2/4	2/4	2/3	2/4			2/0–2/0½
Bournemouth	2/–	2/–	2/–	2/–	2/–	2/–	2/–			1/9
Bradford	2/4	2/4	2/4	2/4	2/4	2/4	2/4			2/1
Bridgwater	1/10½	1/10½	1/10½	1/10½	1/10½	1/10½	1/10½			1/7½
Brighton	2/–	2/–	2/–	2/–	2/–	2/–	2/–			1/9
Bristol	2/4	2/4	2/4	2/4	2/4	2/4	2/4			2/1
Burnley	2/4	2/4	2/4	2/4	2/4	2/4	2/4			2/0–2/0½
Burton-on-Trent	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½			1/11½
Bury	2/4	2/4	2/4	2/4	2/4	2/4	2/4			2/0–2/0½
Cambridge	2/–	2/–	2/–	2/–	2/–	2/–	2/–			1/9
Cardiff	2/4	2/4	2/4	2/4	2/4	2/4	2/4			2/1
Chatham	1/11	1/11	1/11	1/11	1/11	1/11	1/11			1/8
Chelmsford	2/–	2/–	2/–	2/–	2/–	2/–	2/–			1/9
Cheltenham	2/–	2/–	2/–	2/–	2/–	2/–	2/–			1/9
Chester	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½			1/10½–1/11
Chesterfield	2/4	2/4	2/4	2/4	2/4	2/–	2/4			2/1
Colchester	2/–	2/–	2/–	2/–	2/–	2/–	2/–			1/9
Coventry	2/4	2/4	2/4	2/4	2/4	2/4	2/4			2/1
Crewe	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½			1/10½–1/11
Darlington	2/4	2/4	2/4	2/4	2/4	2/4	2/4			2/1
Derby	2/4	2/4	2/4	2/4	2/4	2/4	2/4			2/1
Doncaster	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½			1/11½
Dudley	2/2½	2/2½	2/2½	2/2½	2/2½	1/10½	2/2½			1/11½
Durham	2/4	2/4	2/4	2/4	2/4	2/4	2/4			2/1
East Glam. and Mon. Valleys	2/4	2/4	2/4	2/4	2/4	2/4	2/4			2/1
Exeter	2/–	2/–	2/–	2/–	2/–	2/–	1/11			1/9
Folkestone	1/11	1/11	1/11	1/11	1/11	2/–	1/11			1/8
Gloucester	2/–	2/–	2/–	2/–	2/–	2/–	1/11			1/9
Grantham	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½			1/11½
Grays	2/4	2/4	2/4	2/4	2/4	2/4½	2/3			2/1
Grimsby	2/4	2/4	2/4	2/4	2/4	2/4	2/4			2/1
Great Yarmouth	1/11	1/11	1/11	1/11	1/11	1/11	1/11			1/8
Guildford	1/11	1/11	1/11	1/11	1/11	1/11	1/11			1/8
Halifax	2/4	2/4	2/4	2/4	2/4	2/4	2/4			2/1
Harrogate	2/4	2/4	2/4	2/4	2/4	2/4	2/4			2/1
Hartlepools	2/4	2/4	2/4	2/4	2/4	2/4	2/4			2/1
Hastings	1/11	1/11	1/11	1/11	1/11	1/11	1/11			1/8
Hereford	2/–	2/–	2/–	2/–	2/–	2/–	1/11			1/9
Huddersfield	2/4	2/4	2/4	2/4	2/4	2/4	2/4			2/1
Hull	2/4	2/4	2/4	2/4	2/4	2/4	2/4			2/1
Ipswich	2/–	2/–	2/–	2/–	2/–	2/–	2/–			1/9
Lancaster	2/4	2/4	2/4	2/4	2/4	2/4	2/4			2/0–2/0½
Leamington Spa	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½			1/11½
Leeds	2/4	2/4	2/4	2/4	2/4	2/4	2/4			2/1
Leicester	2/4	2/4	2/4	2/4	2/4	2/4½	2/4			2/1
Lichfield	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½			1/11½
Lincoln	2/4	2/4	2/4	2/4	2/4	2/–	2/4			2/1
Liverpool	2/4	2/4	2/4	2/4	2/4	2/4	2/4			2/0½
Llanelly	2/4	2/4	2/4	2/4	2/4	2/4	2/4			2/1
London	2/4	2/4	2/4	2/4	—	2/4½	2/3			2/1
Loughborough	2/4	2/4	2/4	2/4	2/4	2/4½	2/4			2/1
Luton	2/–	2/–	2/–	2/–	2/–	2/–	2/–			1/9
Maidstone	1/11	1/11	1/11	1/11	1/11	1/11	1/11			1/8
Manchester	2/4	2/4	2/4	2/4	2/4	2/3	2/4			2/0–2/0½
Mansfield	2/2½	2/2½	2/2½	2/2½	2/2½	2/3	2/2½			1/11½
Merthyr Tydfil	2/4	2/4	2/4	2/4	2/4	2/4	2/4			2/1
Middlesbrough	2/4	2/4	2/4	2/4	2/4	2/4	2/4			2/1
Newcastle-on-Tyne	2/4	2/4	2/4	2/4	2/4	2/4	2/4			2/1
Newport, Mon.	2/4	2/4	2/4	2/4	2/4	2/4	2/4			2/1
Northampton	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½			1/11½
Norwich	2/–	2/–	2/–	2/–	2/–	2/–	2/–			1/9
Nottingham	2/4	2/4	2/4	2/4	2/4	2/4½	2/4			2/1
Oldham	2/4	2/4	2/4	2/4	2/4	2/4	2/4			2/0–2/0½
Oxford	2/–	2/–	2/–	2/–	2/–	2/–	2/–			1/9
Plymouth	2/1	2/1	2/1	2/1	2/1	2/1	2/1			1/10
Pontypridd	2/4	2/4	2/4	2/4	2/4	2/4	2/4			2/1
Portsmouth	2/–	2/–	2/–	2/–	2/–	2/–	2/–			1/9
Preston	2/4	2/4	2/4	2/4	2/4	2/4	2/4			2/0–2/0½
Reading	2/–	2/–	2/–	2/–	2/–	2/–	2/–			1/9
Rochdale	2/4	2/4	2/4	2/4	2/4	2/5	2/4			2/0–2/0½
Rochester	1/11	1/11	1/11	1/11	1/11	1/11	1/11			1/8
Rugby	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½			1/11½
St. Albans	2/–	2/–	2/–	2/–	2/–	2/–	2/–			1/8
St. Helen's	2/4	2/4	2/4	2/4	2/4	2/4	2/4			2/0–2/0½
Scarborough	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½			1/11½
Sheffield	2/4	2/4	2/4	2/4	2/4	2/4	2/4			2/1
Shrewsbury	2/2½	2/2½	2/2½	2/2½	2/2½	1/10½	2/2½			1/11½
Southampton	2/–	2/–	2/–	2/–	2/–	2/–	2/–			1/9
Southend-on-Sea	2/0½	2/0½	2/0½	2/0½	2/0½	2/0½	1/11½			1/9
Southport	2/4	2/4	2/4	2/4	2/4	2/–	2/4			2/0–2/0½
South Shields	2/4	2/4	2/4	2/4	2/4	2/4	2/4			2/1
Stockport	2/4	2/4	2/4	2/4	2/4	2/4	2/4			2/0–2/0½
Stockton-on-Tees	2/4	2/4	2/4	2/4	2/4	2/4	2/4			2/1
Stoke-on-Trent	2/4	2/4	2/4	2/4	2/4	2/4	2/4			1/11½
Stroud	2/2½	2/2½	2/2½	2/2½	2/2½	1/10½	2/2½			1/9
Sunderland	2/–	2/–	2/–	2/–	2/–	2/–	1/11½			2/1
Swansea	2/4	2/4	2/4	2/4	2/4	2/4	2/4			1/9
Taunton	2/–	2/–	2/–	2/–	2/–	2/–	2/–			1/9
Torquay	2/–	2/–	2/–	2/–	2/–	2/–	2/–			1/9
Wakefield	2/–	2/–	2/–	2/–	2/–	2/–	2/–			2/1
Walsall	2/4	2/4	2/4	2/4	2/4	2/4	2/4			1/11½
Warrington	2/2½	2/2½	2/2½	2/2½	2/2½	2/4	2/3½			2/0–2/0½
West Bromwich	2/4	2/4	2/4	2/4	2/4	2/4	2/4			2/1
Wigan	2/4	2/4	2/4	2/4	2/4	2/4	2/4			2/0–2/0½
Windsor	2/4	2/4	2/4	2/4	2/4	2/–	2/–			1/9
Wolverhampton	2/–	2/–	2/–	2/–	2/–	2/–	2/–			1/10½
Worcester	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½			1/11½
York	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½			1/11½

CONTRACTS, COMPETITIONS, &c.

For some contracts still open, but not included in this List, see previous issues. Those with an asterisk (*) are advertised in this number. Contracts iv; Competitions iv; Public Appointments lxx; Sales by Auction lxxiv. Certain conditions beyond those given in the following information are imposed in some cases such as that advertisers do not bind themselves to accept the lowest or any tender; that a fair wages clause shall be observed; that no allowance will be made for tenders; and that deposits are returned on receipt of a bona-fide tender unless stated to the contrary.

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in; the name and address at the end is the person from whom or place where, quantities, forms of tender, &c., may be obtained.

BUILDING AND PAINTING.

OCTOBER 23.—**Bromborough.**—HOUSES.—Erection of 12 houses (Type "A") and 4 houses (Type "B"), for the U.D.C. Messrs. John Clarke & Son, Architects, 34, Castle-street, Liverpool. Deposit £2 2s.

OCTOBER 24.—**Stepney.**—PAINTING.—For interior painting and distempering, also building work at the Institution, St. Leonard's-street, Bromley-by-Bow, for the Board of Guardians. Mr. A. J. Smith, Clerk to Guardians' Offices, Barnes-street, Stepney, E. 14. Deposit, £2 2s.

OCTOBER 25.—**Aberdare.**—ALTERATIONS.—For altering, &c., Compton House, Aberdare. Messrs. T. Roderick & Sons, architects, Clifton-street, Aberdare.

OCTOBER 25.—**Newquay.**—HOUSES.—Erection and completion of one or more blocks of houses, for the U.D.C. Mr. John Ennor, Surveyor, Council Offices, Newquay.

OCTOBER 25.—**Gainsborough.**—HOUSES.—Erection of about 100 houses on the Cattle Market site. Mr. E. G. Allen F.R.I.B.A., architect, 4, Arundel-street, W.C.2. Deposit £2 2s.

OCTOBER 25.—**Stevenage.**—COTTAGES.—Erection of 16 houses in Walkern-road, for the U.D.C. Mr. Wm. Onslow Times, Clerk, Council Offices, Stevenage. Deposit £2 2s.

OCTOBER 25.—**Stockbridge.**—COTTAGES.—Six pairs of cottages at Kingsomborne on the Horsebridge site and village site, for the R.D.C. Council's Architect, Mr. F. Henshaw, L.R.I.B.A., Lloyd's Bank-chambers, Andover. Deposit, £1 1s.

OCTOBER 25.—**Theale.**—HOUSES.—Erection of cottages for the Bradfield R.D.C. Mr. W. Jones, Clerk, 17, Friar-street, Reading. Deposit £1 1s.

OCTOBER 26.—**Falkland.**—HOUSES.—Erection of 40 houses for the T.C. Mr. A. D. Haxton, architect, 3, High-street, Leven. Deposit £1 1s.

OCTOBER 26.—**Handsworth.**—HOUSES.—Erection of 12 pairs of houses on the Stubbin-lane site, Woodhouse, for the U.D.C. Messrs. Creswick & Son, 9, East Parade, Sheffield.

OCTOBER 26.—**Kingston-on-Thames.**—REPAIRS, &C.—Repairs and painting internally to the Isolation Wards at the Kingston Union Workhouse, Norbiton. Mr. William H. Hope, architect, "Juppsland," Billingshurst, Sussex. Deposit £1.

OCTOBER 26.—**Knutsford.**—HOUSES, ROADS, ETC.—Erection of 84 houses, for construction of roads and sewers, for the U.D.C. Messrs. Halliday, Paterson and Agate, architects, 14, John Dalton-street, Manchester. Deposit £2 2s.

OCTOBER 26.—**Reading.**—PAINTING.—For internal painting and other works at the Poor Law Institution, for the Board of Guardians. Mr. W. Roland Howell, architect, Blagrave-street, Reading. Deposit £1.

✱OCTOBER 27.—**Bishop's Stortford.**—LODGE.—The Committee of the Hadham and Stanstead Rurals and Sawbridgeworth U.D.C. Isolation Hospital Joint Committee will shortly require tenders for the erection of a lodge. Mr. Thos. G. Hart, Victoria Buildings, Epping, Essex.

OCTOBER 27.—**Bootle.**—HOUSES.—Erection of 36 cottage flats in nine blocks, each containing four flats, and roads, for the T.C. Mr. J. Spencer Tumilty, Town Clerk, Town Hall, Bootle. Deposit, £2 2s.

OCTOBER 27.—**Dundee.**—EXTENSION.—Extension of the Head Post Office at Dundee. Architect, H.M. Office of Works, 3, Parliament-square, Edinburgh. Deposit £1 1s.

OCTOBER 27.—**Hartlepool.**—PAINTING.—Painting the Nursing Home, Gladstone-street, Hartlepool, for the Hartlepool Hospital Managers. Mr. Robert Edger, Secretary, 15, Town Hall, Hartlepool.

OCTOBER 27.—**Port Talbot.**—VARIOUS WORKS.—Internal fittings, sanitary sinks, drainage, hot and cold water service and lighting and heating installation, at the Venereal Diseases Clinic, Port Talbot, for the Glamorgan C.C. Mr. W. E. R. Allen, Deputy Clerk, Glamorgan County Hall, Cardiff.

OCTOBER 28.—**Bournemouth.**—CONVENIENCES.—Construction of women's and men's conveniences at the Lansdowne, for the T.C. Mr. E. P. Dolamore, Borough Engineer, Municipal Offices, Bournemouth. Deposit £1 1s.

OCTOBER 28.—**Larne.**—HOUSES.—Erection of 12 houses for the U.D.C. Surveyor, Victoria-street, Larne. Deposit £1.

OCTOBER 28.—**London, E.**—REDECORATION, &C.—For redecoration work and general repairs at their Infirmary Nurses' Home, Raine-street, E. 1, for the Guardians of St. George-in-the-East.

OCTOBER 28.—**Nantwich.**—HOUSES.—Erection of houses at Acton (4), Audlem (8), Bridgemere (4), Hatherton (4), Hunsterson (6), for the R.D.C. Mr. C. E. Davenport, 152, Hospital-street, Nantwich. Deposit £1 1s.

OCTOBER 29.—**Cardiff.**—REPAIRS.—Internal renovations and repairs at Headquarters Homes, Ely, near Cardiff, for the Board of Guardians. Mr. Arthur J. Harris, Clerk, 11, Park-place, Cardiff.

OCTOBER 29.—**Fleet.**—HOUSES.—Erection of three pairs of cottages on the Elvetham-road site, for the U.D.C. Mr. John Love, M.S.A., architect, Fleet, Hants. Deposit £1 1s.

OCTOBER 29.—**Kilrenny.**—HOUSES.—Erection of 10 houses for the T.C. Mr. A. D. Haxton, architect, Leven. Deposit £1 1s.

OCTOBER 29.—**Torrington.**—HOUSES.—Erection of 14 houses, for the R.D.C. Mr. W. C. Medland, architect, 50, South-street, Great Torrington. Deposit £1.

OCTOBER 30.—**Avoch.**—HOUSES.—Erection of 10 houses at Avoch, for the Black Isle District Committee of the Ross and Cromarty C.C. Mr. D. Matheson, architect, Dingwall.

OCTOBER 30.—**Altofts.**—PAINTING.—For painting schools during Xmas holidays. Mr. A. Batley, Oakleigh, Altofts, Yorks.

OCTOBER 30.—**Barnard Castle.**—HOUSES.—Erection of a number of houses at Middleton-in-Teesdale, Woodland, Cockfield, Staindrop, and Ingleton, for the R.D.C. Mr. Thos. W. Bainbridge, Clerk, Union Offices, 19, Galgate, Barnard Castle. Deposit £2 2s.

OCTOBER 30.—**Cromarty.**—HOUSES.—Erection of six working-class houses of 4 rooms each, for the T.C. Mr. D. Matheson, architect, Dingwall.

OCTOBER 30.—**Edinburgh.**—HOUSES.—Erection of 310 houses, at Saughtonhall-drive, for the T.C. Messrs. R. & A. K. Smith, surveyors, 44, Queen-street, Edinburgh.

OCTOBER 30.—**Middleton.**—HOUSES.—Erection of 36 houses, for the T.C. Borough Engineer, Town Hall, Middleton. Deposit £2 2s.

NOVEMBER 1.—**Bradfield.**—HOUSES.—Erection of two or three houses at Tutts Clump, Bradfield, for the R.D.C. Mr. Basil Sutton, architect, Lambourn, Berks.

NOVEMBER 1.—**Doncaster.**—HOUSES.—Erection of 170 houses of various types, for the T.C. Mr. R. E. Ford, Housing Surveyor, 3, Priory-place, Doncaster. Deposit £2 2s.

NOVEMBER 1.—**Grays.**—COTTAGES.—Erection of 12 cottages, Cromwell-road, Grays, for the Essex C.C. County Architect, 79, Duke-street, Chelmsford. Deposit £2 2s.

NOVEMBER 1.—**Markinch.**—HOUSES.—Erection of 24 houses, for the T.C. Mr. A. D. Haxton, architect, Leven. Deposit £1 1s.

NOVEMBER 1.—**Middleton in Wharfedale.**—BUILDINGS.—Erection of additional buildings at the Sanatorium at Middleton in Wharfedale for the Commissioners of H.M.O.W.

NOVEMBER 1.—**Prestatyn.**—HOUSES.—Erection of 32 houses for the U.D.C. Mr. F. Wilkinson, Architect, Council Offices, Prestatyn. Deposit £3 3s.

NOVEMBER 1.—**Slough.**—HOUSES.—Erection of houses of various types for the U.D.C. Mr. Alan Bromly, Architect to the Council, 4, William-street, Slough.

NOVEMBER 1.—**Woodford.**—SCHOOL.—Conversion of an Army Hut, already erected, into a boys' school, for the Essex C.C. County Architect, 79, Duke-street, Chelmsford. Deposit £2 2s.

NOVEMBER 2.—**Liverpool.**—ADDITIONS.—Alterations and additions to the existing Women's Hospital at the Smithdown-road Institution, Liverpool, for the Board of Guardians. Mr. Wm. P. Horsburgh, Licentiate R.I.B.A., Central-buildings, 41, North John-street, Liverpool. Deposit £3 3s.

NOVEMBER 3.—**London, W.**—BUILDING WORKS.—For (*a*) reconstruction of an existing building into a Nurse's Home; (*b*) erection of Operating Theatre on Central Corridor; (*c*) making a new roadway at their Infirmary, 285, Harrow-road, W., for the Paddington Guardians. Mr. H. Percy Adams, F.R.I.B.A., architect, 28, Woburn-place, W.C. 1. Deposit, £5.

NOVEMBER 3.—**Paddington.**—BUILDING WORKS.—Building works, comprising (a) the reconstruction of an existing building into a Nurses' Home; (b) the erection of an Operating Theatre and central corridor; (c) the making of a new roadway, at the Infirmary, for the Board of Guardians. Mr. P. Biddulph Hancock, Clerk, 313–319, Harrow-road, Paddington, W.9. Deposit £5.

NOVEMBER 6.—**Inverness.**—PAVILION.—Erecting a phthisis pavilion at the Infectious Hospital, for the T.C. Mr. Alex. F. Mackenzie, Burgh Surveyor, Town House, Inverness.

✱NOVEMBER 6.—**Steyning.**—HOUSES. Erection of houses at Lancing, Steyning (Coxham-lane), Upper Beeding (High-street), Sompting (Cokeham), Sompting (Lambley's-lane), Ashurst (School-lane), Edburton (Truleigh Farm), Old Shoreham (Old Erringham Farm), Shermanbury (Fryland-lane), and Woodmancote (Blackstone). Mr. F. A. Crouch, Architect, Council Offices, Ham-road, Shoreham-by-Sea. Deposit £1 1s.

✱NOVEMBER 8.—**Sandwich.**—HOUSES.—Erection of 99 houses at Sandwich, Kent, for the T.C. Architect, Mr. E. W. May, 51, New-street, Sandwich. Deposit, £3 3s.

NOVEMBER 8.—**Shipley.**—HOUSES.—Erection of 53 houses of seven types, at Craig End, Windhill, for the U.D.C. Architect, Council Offices, Somerset House, Shipley. Deposit £1.

NOVEMBER 12.—**Stratford-on-Avon.**—HOUSES.—Erection of 54 houses for the Rural Council working class dwellings. Mr. M. J. Harvey, 5, Shakespeare Chambers, Stratford-upon-Avon. Deposit £1 1s.

NOVEMBER 13.—**Ghent.**—WAREHOUSES.—Construction of two reinforced concrete warehouses for the Municipal Authority. Engineering Office, Department of Overseas Trade, 35, Old Queen-street, S.W.

NO DATE.—**Amersham.**—HOUSES, ETC.—Erection of 20 houses, construction of small sewage disposal works, &c., at Chalfont St. Giles, for the R.D.C. Messrs. Burgess, Holden and Watson, architects, Beaconsfield, Bucks. Deposit £2 2s.

NO DATE.—**Cardiff.**—FACTORY.—Erection of new factory and warehouses for A. McLay & Co., Ltd., printers, 16, Working-street, Cardiff. Mr. T. W. Price, architect, 33, Fields Park-road, Cardiff.

✱NO DATE—**Cardiff.**—OFFICE BUILDINGS.—Erection of a block of office buildings for the Salvage Association (London), with a considerable amount of ferro-concrete construction. Mr. Henry Budgen, architect, 95, St. Mary-street, Cardiff. Deposit £4 4s.

NO DATE.—**Thornbury.**—HOUSES.—Erection of houses at Rangeworthy, Falfield, East Compton and Almondsbury, Glos., for the R.D.C. Mr. Chas. H. White, architect, 10, St. John-street, Bristol.

NO DATE.—**Westbury.**—HOUSES.—Erection of 24 cottages, in 12 blocks of two cottages each, for the U.D.C. Mr. Walter W. Snailum, architect, Church-street, Trowbridge.

FURNITURE, MATERIALS, etc.

OCTOBER 22.—**London.**—MATERIALS.—Supply of (1) Paints, &c. (2) wrought-iron or steel piping, and (3) files to the Bombay, Baroda and Central India Railway Company. Mr. S. G. S. Young, Secretary, White-mansions, 91, York-street, Westminster, S.W. 1. Charge, 10s.

OCTOBER 23.—**Glasgow.**—MATERIALS.—Supply of various materials for 12 months to the Board of Guardians. Mr. J. R. Motion, Clerk, 286, George-street, Glasgow

OCTOBER 25.—**Paddington.**—RAILWAY STORES.—Supply to the G.W.R. Co. of materials. Stores Supt., Swindon.

OCTOBER 27.—**London.**—PORTABLE RAILWAY.—Supply to Jamnagar Dwarka Railway Company of five miles of 14 lb. portable railway track. Messrs. Rendel, Palmer & Tritton, 13, Dartmouth-street, Westminster, S.W. 1. Charge £1 1s.

OCTOBER 28.—**London.**—PLASTERER'S TOOLS.—Supply to the Commissioners of His Majesty's Works, &c., Storey's Gate, Westminster, London, of plasterer's tools. The Controller of Supplies, H.M. Office of Works, &c., King Charles-street, Westminster, S.W. 1.

OCTOBER 30.—**Manchester.**—MATERIALS.—Supply to the Public Health Committee of 10 tons genuine English white lead in oil; 150 galls. pure raw linseed oil; 100 galls. pure boiled linseed oil; 150 galls. pure American turpentine. Housing Manager, Civic Buildings, 1, Mount-street, Manchester.

ENGINEERING, IRON AND STEEL.

OCTOBER 25.—**Bristol.**—ELECTRIC LIGHTING.—Electric light wiring and fittings at Eastville Institution, for the Board of Guardians. Mr. H. T. Sully, Scottish Widows' Buildings, Baldwin-street, Bristol. Deposit, £2 2s.

OCTOBER 25.—**Garstang.**—BRIDGE.—For the widening and improvement of Roe Buck Canal Bridge, Myerscough, for the R.D.C. County Bridgemaster's Office, County Offices, Preston.

OCTOBER 26.—**London.**—RAILWAY MATERIAL.—Supply to the South Indian Railway Company of steel axles for locomotives (984) and rolling stock. Company's Offices, 91, York-street, Westminster, S.W. 1. Charge, £1.

OCTOBER 27.—**Burnley.**—FILTERS.—Installation of mechanical pressure filters, at Hurstwood Reservoir, for the T.C. Messrs. James Diggle & Son, Civil Engineers, 14, Brown-street, Manchester.

OCTOBER 27.—**Manchester.**—STEELWORK.—Steelwork in turbine house and switch house of the Barton Power House, for the T.C. Mr. F. E. Hughes, Secretary, Electricity Department, Town Hall, Manchester. Deposit £2 2s.

OCTOBER 28.—**Bradford.**—COOLING TOWERS.—ETC.—Supply and erection of following:—Two natural draught chimney type cooling towers, pipe work, troughing valves, &c. Mr. Thomas Roles, City Electrical Engineer Electricity Offices, Town Hall, Bradford. Deposit £1 1s.

OCTOBER 30.—**Chesham.**—BRIDGE.—For widening of Army Mill Bridge, for the Bucks C.C. Mr. R. J. Thomas, County Surveyor, County Hall, Aylesbury.

NOVEMBER 1.—**Bromley.**—RESERVOIR.—Construction of covered service reservoir at Bromley, Kent, for the Metropolitan Water Board. Offices of the Board (Chief Engineer's Department), 173, Rosebery-avenue, Clerkenwell, E.C. Deposit £10.

NOVEMBER 2.—**Paddington.**—GIRDERS.—Supply of about 93 tons of steel girders and other iron and steel work of British manufacture, for the G.W.R. Co. Office of the Engineer, Paddington Station, W.

NOVEMBER 3.—**Belfast.**—WATERWORKS.—Construction of the "Silent Valley" storage reservoir, &c., in the Mourne Mountains, County Down, for the T.C. Mr. W. I. Quinn, Secretary, Water Office, Royal-avenue, Belfast. Deposit £5 5s.

NOVEMBER 3.—**London.**—RAILWAY MATERIAL.—Supply to the South Indian Railway Co. of:—(1) steel boiler plates (flat and flanged); (2) screw spikes; (3) steel bearing plates; (4) wheels and axles (disc) (250 pairs). Company's offices, 91, York-street, Westminster, S.W.1. Charge 10s. for 1, 2, 3, and £1 for 4.

NOVEMBER 5.—**Aberdeen.**—RESERVOIR.—Construction of reservoir, &c., at Invercannie, for the T.C. Water Engineer, 41½, Union-street, Aberdeen. Deposit £5.

NOVEMBER 16.—**Wallasey.**—VARIOUS WORKS AND SUPPLIES.—The Corporation Gas and Water Department invite tenders for a Lancashire boiler, railway metals, creosoted sleepers, and for the construction of two branch railway sidings. Mr. J. H. Crowther, Engineer, Gas Works, Wallasey.

NOVEMBER 30.—**Bristol.**—DOCK.—The Bristol Docks Committee invite tenders for the lease of its dry dock on the floating harbour, near Cumberland-road, subject to the conditions that the lessee shall undertake the restoration and improvement of the dock (including the provision of a new caisson). Chief Engineer Avonmouth Docks, Bristol.

ROAD, SANITARY, AND WATER WORKS.

OCTOBER 25.—**Failsworth.**—SANITARY.—Conversion of pail closets into water closets, for the U.D.C. Mr. J. W. E. Brown, Surveyor, Town Hall, Failsworth.

OCTOBER 25.—**Gildersome.**—ROADS, ETC.—Laying out of the Vicarage site for 41 houses, for the U.D.C., Mr. T. A. Buttery, architect, Queen-street, Morley.

OCTOBER 25.—**Keighley.**—SEWER.—Laying of 883 lineal yards of 9 in. pot pipe sewer, and of 66 2-3 yards of 6 in. pot pipe sewer at Morton Banks, for the R.D.C. Mr. Thomas Burton, Sanitary Inspector, Market Chambers, Keighley.

OCTOBER 25.—**Stockbridge.**—CEMETERY.—Laying out and fencing a new Burial Ground at Stockbridge, including road-making, etc., for the Parish Council. Mr. Frank Jenvey, surveyor, Market-place, Romsey. Deposit 10s. 6d.

OCTOBER 26.—**Barking.**—WOOD PAVING.—Execution of creosoted deal paving on concrete foundations in East-street, for the U.D.C. Mr. C. F. Dawson, Surveyor, Clock House Chambers, East-street, Barking.

OCTOBER 26.—**Edmonton.**—PAVING.—For paving the haunches of the main Hertford-road, from Bridge-road, Lower Edmonton, to the Tottenham and Edmonton boundary, with creosoted wood paving, for the U.D.C. Mr. Cuthbert Brown, Engineer, Town Hall, Edmonton.

OCTOBER 27.—**St. Albans.**—SEWERAGE.—Works of sewerage in the parish of Wheathampstead, for the St. Albans R.D.C. Messrs. Howard Humphreys & Sons, 28, Victoria-street, Westminster, S.W.1. Deposit £2 2s.

OCTOBER 28.—**Saltash.**—ROAD.—Construction of a road, and laying sewer and water main on housing site, for the T.C. Offices, 4, Buckland-terrace, Plymouth.

OCTOBER 30.—**Bristol.**—ROAD.—Construction of earthworks, temporary bridges and surface water drainage in connection with new road from Bristol to Avonmouth, for the T.C. Engineer's Office, 63, Queen-square, Bristol. Deposit £5 5s.

OCTOBER 30.—**Middleton.**—For making up site in connection with Boarshaw Housing Scheme, for the T.C. Borough Engineer, Town Hall, Middleton. Deposit £1 1s.

NOVEMBER 2.—**Llandaff.**—ROADS.—For private street improvement works and surface water sewers, for the R.D.C. Mr. William Farrow, surveyor, Park House, 20, Park-place, Cardiff.

NOVEMBER 2.—**Pontardawe.** WATER MAINS.—For laying water mains at Pontardawe and Clydach, for the R.D.C. Mr. B. Islwyn Phillips, Engineer, Pontardawe.

NOVEMBER 15.—**Gellygaer.**—ROADS.—Construction of second section of the road between Hengoed and Tir-y-berth, about one mile in length, for the U.D.C. Mr. F. Read, Engineer, Council Offices, Hengoed, Glam. Deposit £2 2s.

NOVEMBER 16.—**Easington.**—ROADS.—For private street works at Shotton Colliery, Wingate-lane, and Horden. Mr. J. G. Heslop, Highway Surveyor, Castle Eden. Deposit £2.

NOVEMBER 20.—**Wath-upon-Dearne.**—ROADS, &C.—Construction of roads, sewers, fencing, &c., in connection with housing scheme at Wath, for the U.D.C. Messrs. Nicholson & Co., Clerks, Wath-upon-Dearne. Deposit £2 2s.

NOVEMBER 22.—**Dewsbury.**—SEWAGE DISPOSAL WORKS.—Construction of precipitation tanks, the culverting of Pildacre Beck, and other work in connection with the construction of sewage disposal works at Mitchell Laithes, for the Dewsbury T.C. Messrs. J. Diggle & Son, 14, Brown-street, Manchester. Deposit £3 3s.

FEBRUARY 14. 1921,—**Palestine, &c.**—CEMETERY CONSTRUCTION.—The Imperial War Graves Commission invite tenders for the construction of (*a*) four cemeteries in Palestine, (*b*) 26 cemeteries at Anzac (Gallipoli), (*c*) 14 cemeteries in Macedonia. Director of Works, Imperial War Graves Commission, 33–36, Baker-street, W. Deposit £10.

Auction Sales, Tenders, &c.

OCTOBER 26 AND 27.—**Norfolk and Suffolk.**—Messrs. Joseph Hibbard & Sons will sell upon Westwick Estate (near North Walsham Station, Norfolk) and Henham Estate, Wangford (near Blythburgh Station, Suffolk), stock of Home Grown softwoods.

✱OCTOBER 27.—**Dover.**—Messrs. Worsfold & Hayward will sell, by direction of the Disposal Board, at Long Hill Camp, Dover, in good order and strongly built, very suitable for small holdings and farm buildings, huts and camp buildings. Auctioneers: Market-square, Dover.

OCTOBER 27 AND 28.—**Newbridge-on-Wye.**—Messrs. Joseph Hibbard & Sons will sell upon the sites of woods, Rhelw Farm, Roscoch Wood, Newbridge-on-Wye, and at Station Yard, New Radnor, Sawmill plant of stock of timber.

✱NOVEMBER 2.—**Finchley, N.**—Messrs. Protheroe & Morris are instructed by Messrs. P. E. Kay, Ltd. (who have decided to offer the Claigmar Vineyards, Finchley, N., for sale by auction on the premises. Auctioneers, 67 and 48, Cheapside, London, E.C.

✱NOVEMBER 3.—**Brighton.**—Messrs. Harris & Gillow will sell, by order of the Disposal Board, valuable camp buildings at the Pavillion Hospital, Brighton. Auctioneers: Auction Yards, Shoreham-by-Sea, Sussex.

✱NOVEMBER 3.—**Greenford (Middlesex).**—Messrs. Bradshaw, Brown & Co. will sell, by order of the Disposal Board, at C.S. Depot, 93, Greenford, plane and machinery, office and other furniture, also large quantity of engineers' and general stores, paint, varnish, &c. Auctioneers: Billiter-square Buildings, London, E.C. 3.

NOVEMBER 16 AND 17.—**Marshmoor Hill, Herts.**—Messrs. Joseph Hibbard & Sons will sell upon the site of the late Board of Trades' Mill at Marshmoor, stock of well-seasoned English timber.

✱NO DATE.—**Nine Elms, S.W.**—Messrs. Warmington & Co. will sell, at Nine Elms-lane and Ponton-road, the stock and utensils in trade of a van builder and wheelwright, together with stock of well-seasoned timber. Auctioneers: 1, Dover-street, Piccadilly, W. 1

Competitions.

(*See Competition News, page* 450.)

Public Appointments.

OCTOBER 22.—**Penybont.**—COSTINGS CLERK.—The R.D.C. require a Costings Clerk for their housing schemes. Salary £300 per annum.

✱OCTOBER 25.—**Cardiff.**—BUILDING INSPECTOR.—Required by the City Council. Commencing salary, £350. Mr. Cecil G. Brown, Town Clerk, City Hall, Cardiff.

✱OCTOBER 25.—**Mountain Ash.**—CLERK OF WORKS.—Required by the District Council in connection with their housing scheme. Mr. Arthur Pincombe, Clerk to the Council, Town Hall, Mountain Ash.

OCTOBER 25.—**Weybridge.**—CLERK OF WORKS.—The U.D.C. require a capable Clerk of Works for their housing scheme. Salary £7 7s. per week.

✱OCTOBER 26.—**Singapore.**—QUARRY FOREMAN.—Experienced quarry foreman to gain 1,000 cubic yds. of coral per day from reefs fringing the coast. Testimonials, references, &c., to be lodged with Messrs. C. C. Lindsay & Peirce, M.M.Inst.C.E., 180, Hope-street, Glasgow.

OCTOBER 29.—**South Africa.**—QUANTITY SURVEYORS.—Fully-qualified Quantity Surveyors and Quantity Surveyor's Assistants required by the Government of the Union of South Africa, Department of Public Works

✱NOVEMBER 1.—**Wolverhampton.**—Qualified Senior Architectural Assistant required by the Housing Committee. Mr. George Green, Borough Engineer, Town Hall, Wolverhampton.

NOVEMBER 3.—**Holywell.**—Clerk of Works required by the Rural District Council. Mr. Richard Jones, Clerk to the Council, Council Offices, Holywell.

NOVEMBER 8.—**Durham.**—County Valuer required by the County Council. Mr. Harold Jevons, Clerk to the County Council, Shire Hall, Durham.

NOVEMBER 8.—**East Grinstead.**—Clerk of Works required by the Urban District Council, Mr. E. P. Whitby Hughes, Clerk to the Council, London-road, East Grinstead.

NOVEMBER 9.—**Manchester.**—Housing Director required by the City Council. Mr. Thomas Hudson, Town Clerk, Town Hall, Manchester.

✱NOVEMBER 10.—**Durham.**—The County Council of Durham invite applications for various positions in the Architectural Department, Director of Education, Shire Hall, Durham.

Commercial Motor Exhibition.

The stand of the Bergougnan Tyre Co. at the Commercial Motor Exhibition, at Olympia, is No. 177, and not No. 117, as stated in the firm's advertisement in our last issue.

A Builder's Estate.

The late Mr. Frank Collins, a retired builder, of Highgate, who died on June 23 last, left estate of the gross value of £134,003, with net personalty £104,196.

J. GLIKSTEN & SON
LIMITED
Specialities in
SEASONED HARDWOODS
MAHOGANY, WALNUT, AMERICAN and WAINSCOT, OAK, TEAK, WHITEWOOD, &c.
REGISTERED OFFICE AND WHARF:
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BRC Fabric

WANDS-DURA COMPOUNDS
TRADE MARK
RODURA and FIXDURA
Applied Hot. (IN COLOUR). Applied Cold
The Ideal Remedy for Leaky Roofs
Easily applied.
No need to strip old Roofs or Zinc.
Sets hard and remains plastic.
Not affected by extreme heat or cold.
Once fixed becomes imperishable.
Finished job cheaper than Lead or Zinc.
Sticks to Stone, Wood, Glass, Metals, etc., and is Waterproof.
PENTDURA
The Ideal Preservative for Gutters, Rhones, Railings, Stack-Pipes, Ventilating Shafts, and all Iron and Timber work exposed to action of water and weather
Effective as Damp-resistant, and walls can thereafter be covered with any delicate wall paper.
Anti-corrosive, one coat covers.
Cheaper than Oil Paints.
Colours: Brown, Chocolate, Dark-Red, Green and Black
Full particulars and samples from
REPARO, LIMITED WANDS-DURA WORKS
3, POINT PLEASANT WHARF, PUTNEY BRIDGE ROAD, WANDSWORTH, LONDON, S.W.18
Telephone: PUTNEY 1723. Telegrams: WANDSDURA, WANDS, LONDON

PROPOSED NEW BUILDINGS AND OTHER WORKS.*

In these lists care is taken to ensure the accuracy of the information given, but it may occasionally happen that, owing to building owners taking the responsibility of commencing work before plans are finally approved by the local authorities, "proposed" works at the time of publication have been actually commenced. Abbreviations:—T.C. for Town Council; U.D.C. for Urban District Council; R.D.C. for Rural District Council; E.C. for Education Committee; B.G. for Board of Guardians; L.C.C. for London County Council; B.C. for Borough Council; and P.C. for Parish Council.

ALDERLEY EDGE.—A site on the De Trafford estates has been selected for a new cottage hospital for Alderley Edge which is to be erected by moneys left by the late Mr. Otto Baerlein, who directed that the residue of his estate, about £20,000, should be handed to the U.D.C., with power to decide how the money should be spent. The Council decided that a cottage hospital should be provided.

BANGOR, CO. DOWN.—Plans passed by U.D.C.: House, College-avenue, for Miss Mary Ruddell, 35, Main-street; 13 houses, Southwell-road, for the Bangor Property and Development Co.; auction mart and office, Central-avenue, for Spence & Clancy, Main-street.

BARNES.—Plans passed by U.D.C.: Observatory, 34, The Crescent, Barnes, by Mr. F. G. Cole; sanitary improvements, etc., Glentham-road, Barnes, by the West End (London) Laundry Co.; house, Fife-road, Mortlake, by Mr. T. M. Dabowicz, cinema hall, Sheen-lane, Mortlake, by Mr. Clifford A. Aish; additions to factory, Station-road, Mortlake, by Messrs. Diserens Bros. & Co.; four houses, Temple Sheen-road, and four houses, Percival-road, Mortlake, by Mr. Leslie D. Coupland.

BERMONDSEY.—Building, abutting on Druid-street and Neckinger-place, Mr. E. W. Fisher, for P. Leiner & Sons.

BOLTON.—Plans approved: Richard Hough, Ltd., covering to yard, Chancery-lane; Dr. W. Rolland, additions, 363, Blackburn-road; Tootal, Broadhurst, Lee & Co., greenhouse, Sunnyside Mill; Bennett & Co., petrol store, off Moor-lane; Thomas Moscrop & Co., re-building wall, Back Bark-street; Mr. J. Leigh, motor-garage, Back Longden-street; Mr. W. Openshaw, wood and asbestos motor shed, off Chorley Old-road; Mr. F. Dixon, additions to house, 180, Chorley New-road; Mr. T. Woods, two houses, off New Hall-lane; Mr. J. Hilton, barn and shippon, New-lane, Breightmet; Mr. John E. Rigby, conversion of shop into dwelling house, 448, Tonge Moor-road; St. Augustine's Mission Church, wooden class room, Thicketford-road; James Chadwick & Bros., Ltd., waiting room, Blackburn-road; Thornleigh Tennis Club, pavilion, off Belmont-road; Sir John Holden, converting stabling, &c., into two dwellings, "Ollerton," Andrew-lane.

DULWICH.—Sunday school, adjoining Herne Hill Wesleyan Church, Half Moon-lane, Mr. R. E. Crossland, for the Trustees.

EAST HAM.—Plans passed by B.C.: Alterations, Palace Cafe, High-street North, for Mr. Randolph; offices and store, 42–46, Heigham-road, for the Boddy Life Savings Appliances, Ltd.; four houses and doctor's residence, Beckton-road, for the Gas Light and Coke Co.; steel-framed building, 85, Plashet-grove, for Messrs. E. & A. Hacker; dairy, 477–9, Katherine-road, for Mr. J. Mortlock; alteration and additions to shop, 251-253, High-street North, for T. Jay Evans & Son; alteration to entrance, Premier Electric Theatre, High-street North, for the Premier Cinema Co., Ltd.; dance hall, Wakefield House, Wakefield-street, for Mr. G. J. A. Baker.

FILEY.—Alterations, 75, West-avenue, Mr. R. M. Robson, for Mr. A. Gardner.

HACKNEY.—Additions, rear of 56, 58 & 60, Spring-lane, for W. Shurmur & Sons; workshop, 169, Well-street, for W. Harbrow, Ltd.; additions, factory premises, 173 & 175, Lower Clapton-road, for L. H. & R. Roberts; additions, 51, Kingsland High-street, for Meeson Bros.

HALESOWEN.—The R.D.C. has decided to proceed with arrangements for the purchase of approximately 28 acres of land adjoining the cartridge factory at Hill and Cakemore, with the view to the promotion of a housing scheme for 300 houses. The Council decided to proceed with the erection of 150 houses, and the Surveyor has been instructed, on obtaining the approval of the Housing Commissioners to the site, to prepare the lay-out scheme and submit it to the Ministry of Health and Housing Commissioners.

HOVE.—Plans passed by T.C.: Conversion of 49, York-road into flats, Mr. T. H. Buckwell, for Mr. Gosden; covered way, St. Paul's Lodge, New Church-road, J. Parsons & Sons, for Mrs. V. Smith; bungalow, Glendon-road, Mr. A. H. Lainson, for Mrs. Squires; alterations, 82, George-street, Mr. G. Austin, for Mr. A. Palmer; stabling, Portland-road, F. Bethell & Swannell, for the Brighton Equitable Co-operative Society; motor garage, 19, Langdale-road, Mr. W. H. Overton, for the Hon. Mrs. A. Pelham.

HULL.—Plans passed: J. Windass, house, Hessle-road; Hull Brewery Co., Ltd., four houses, Tomlinson-street; F. Singleton, seven houses, Westbourne-avenue and Richmond-street; Hill & Ward, fourteen houses, Newland-park; W. Lowery, house, Newland-park; Hull Brewery Co., Ltd., two houses, Egton-street; Kingston Theatre Co., theatre, Prospect-street and Wright-street; C. Riley, drainage, William-street; F. Brown, cooperage, 153, Wincolmlee; National Sailors' Firemen's Union, new premises, 8, Posterngate; Hull Oil Manufacturing Co., Ltd., alterations, cake house, Stoneferry; Hull Co-operative Society, Ltd., alterations, &c., Gibson-street; W. P. Barker, garage, 80, Barnsley-street; W. Pounder & Son, engine shed, Crowle-street; Trustees, Stoneferry Sick and Recreation Club, shed, Stoneferry-road; Universal Oil Co., latrines, Oak-road; Reckitt & Sons, Ltd., workshop, Morley-street; Trustees, Sailors, and Soldiers' Club, alterations, 115, Anlaby-road, and additions, Alfred Gelder-street; Morrell & Co., Ltd., garage and offices, Chapel-street and Little Queen-street; Anderson & Co., additions, 29, Whitefriargate; F. Fugill, garage, 422, Anlaby-road; J. Wood & Sons, Ltd., mill, Hyperion-street; Moors' & Robson's, Ltd., alterations, "Prince of Wales," Raikes-street and Marvel-street; Owen & Robinson, alterations, South-street; Hull Co-operative Society, Ltd., stables, Patrick's-lane, Dairycoates; Northern Combines, Ltd., alterations, "Rialto," Terry-street; Reckitt & Sons, Ltd., pump house additions, Dansom-lane; Needlers, Ltd., transformer house, Sculcoates; W. P. Barker, garage, 80, Barnsley-street; Reckitt & Sons, Ltd., stove houses, Morley-street; Universal Oil Co., temporary shed, Oak-road; Hull Steam Fishing and Ice Co., workshops, &c., St. Andrew's Dock; Hull City Garage, additions, Beverley-road; E. Tait, Ltd., shed, West Dock-avenue; J. A. Frost, garage, 468, Anlaby-road; J. Martin & Co., warehouse, &c., 178, Holderness-road; J. Stather & Sons, Ltd., shed, Hopwood-street; Trustees, Holy Trinity Church, heating chamber, South Church-side; Humber Fruit Brokers, Ltd., offices, Pier-street; Universal Oil Co., Ltd., still room, &c., Oak-road; D. McDonald, alterations, 14, Baker-street; Premier Oil Extracting Co., additions, Stoneferry; Amos & Smith, Ltd., shed, Neptune-street; A. A. Mont, alterations, "Gledholt House," Eldon-grove; Smith & Nephew, Ltd., temporary sheds, Gilbert-street; A. Carr, alterations, 112 & 114, Clarendon-street; R. L. Scully, garage, 137, Park-avenue; G. Panton, garage, 57, Rymers-avenue; W. Jackson & Sons, w.c., Charles-street; A. Dennis & Co., Ltd., lavatory, &c., Bishop-lane; Trustees, Sculcoates Union, receiving house, Margaret-street; Reckitt & Sons, Ltd., spirit store, St. Marks-street; H. F. & Lee Smith, Ltd., dining room and lavatories, Wincolmlee; Barclay's Bank, Ltd., lavatory, Beverley-road; F. Plummer, alterations and additions, Paragon-street; W. L. Thompson, Ltd., shop windows, Anlaby-road; Trustees, Victory Club and Institute, billiard room, De Grey-street; J. L. Seaton & Co., oil refinery, Air-street; Storry, Smithson & Co., Ltd., shed, &c., Bankside; O. Toffolo, sheds, North-street; J. Cooke, additions, 124, Lambert-street; B. Rix, garage, Newland-park; Kelsall Bros., additions, St. Andrew's Dock; Horsley, Smith, Ltd., saw mill, Abbey-street and Bellamy-street; Hull Oil Manufacturing Co., Ltd., additions to mill, Stoneferry; Smith & Nephew, manufactory, Neptune-street.

ILKESTON.—Plans passed by T.C.: Bungalow, Green-lane, for Mr. Wm. Yates; Army hut, rear of 44, Bath-street, for Mr. H. Fraser; alterations, 169-171, Bath-street, for S. & A. Goodwin; additions to Catholic Church, Regent-street, for the Trustees of Roman Catholic Church; garage, Wilton-place, for Mr. Jas. H. Whitehead; petrol store, Market-street, for the Shell Motor Spirit Co., Ltd.; alterations for dairy, Derby-road, for the Ilkeston Co-op. Society, Ltd.; motor garage for Rescue Station, Manners-road, for the Coalowners' Association.

LOUTH.—At its last meeting the T.C. agreed to erect 50 houses.

NEWPORT, ISLE OF WIGHT.—Plan passed: Additions to "Sir John Barleycorn" public house, for W. B. Mew, Langton & Co.

NOTTINGHAM.—Plans have been deposited with the Corporation on behalf of a syndicate which proposes to erect a cinema palace at a cost of approximately £100,000, on the site formerly occupied by the business premises of Fred Henry & Son, 9, Derby-road.

PORTADOWN.—The T.C. has approved of plans for the erection of a motor garage in Cecil-street for the Irish Road Transport Co.

SCARBOROUGH.—Plans passed by the Council: Alterations and additions to workshop, Vincent-street, by Mr. H. S. Rogers, architect, on behalf of the Parish Church Trustees; for a memorial gateway at St. Mary's Parish Church, by Mr. F. A. Tugwell, architect, on behalf of Mr. H. Pickup; for an additional moulding shed to engineering works, Roscoe-street.

SPENNYMOOR.—Plans passed: Garage, Bryan-street; alterations, 12, Marmaduke-street, for Mr. Dixon; dwelling-house, near the "Garden House" hotel, Merrington-lane, for Mr. W. Johnson.

UXBRIDGE.—Plans passed by R.D.C.: Bungalows, Harefield Park estate; house and workshop, Pinner-road, Harefield; drying shed, Pilocol Works, Harefield; additions to house, Church-road, West Drayton.

WEYMOUTH.—Alterations, 66, St. Mary-street, Messrs. Jenkins, Hitt & Grant, for Mr. G. C. Bateman.

WHITTINGTON AND NEWBOLD.—Plans passed by U.D.C: Club room, Stoney-lane, New Whittington, for the Comrades of the Great War; conversion of Army hut into a dwelling in Stand-row, Whittington Moor, for Mr. G. Bell, and the conversion of an Army hut into two dwellings in Station-road, Whittington Moor, for Messrs. J. R. and F. W. Green.

WORTHING.—Plans passed: Steel framed shed, King-street, Mr. H. M. Potter, for Woollard & Newington; house, St. Lawrence-avenue, Mr. A. M. Butler, for Mr. W. H. Gordon; lock-up garages, Grand Hotel Buildings, South-street, Mr. J. E. Lund, for Mr. F. G. Searle; conversion of outbuildings into a dwelling-house, "The Croft," Heene-road, Messrs. Patching & Co., for Mr. H. C. Newton; house, Grand-avenue Mr. T. R. Hyde, for Mr. W. Dickinson; coach house, Market-street, Mr. E. W. Sparks, for Mr. R. Stent; lock-up shop, Grand Hotel Buildings, South-street, Mr. J. E. Lund, for Mr. F. G. Searle; addition, 37, South-street, for Messrs. Jordan & Cook. Plans have been passed under the Housing (Additional Powers) Act, 1919, as follows: Mr. E. R. Hawkins, detached bungalow, Ham-road; Mr. J. I. Williams, three houses, Grand-avenue, and three houses, Bath-road; Mr. C. E. Parsons, two houses, Highfield-road, and two houses, Highfield-road; Mr. G. Harwood, house, Ripley-road; Dr. Hackworth, two houses, Westcourt-road; Mr. W. H. Gordon, house, St. Lawrence-avenue.

* See also our List of Contracts, Competitions, &c.

FIRES.

DUNDEE.—The large drapery warehouse of Draffen and Jarvis, Ltd., has been the scene of a serious fire involving damage to the extent of between £50,000 and £60,000.

LLANDUDNO.—The Marine Hotel, one of the large structures on Llandudno promenade, has been destroyed by fire.

SHEFFIELD.—A fire has occurred at the works of Messrs. John Kenyon & Co., steel manufacturers, White Croft.

THE INDUSTRIAL POSITION.

IN the course of an address delivered on Monday last before the Glasgow Chamber of Commerce, Lord Weir gave a very complete survey of the present industrial position, the seriousness of which he ascribed to the continuous acceleration of the rate of increase in the cost of living, the sporadic but ever-recurring examples of unrest and discontent among the industrial community, the threatened shrinkage in the sales of products, the impaired volume and efficiency of production, and the gradual encroachment of foreign competition, not only in the home but also in the world markets. It was, he said, universally agreed that the decrease in products was one of the main factors in maintaining and increasing the cost of living, and was beyond question the chief element affecting our impaired exchange. It was impossible under existing conditions to maintain the present standard of living, and no improvement in the standard of living was possible until productivity was not only enormously increased, but was much more efficiently secured. There were only four methods of improving the volume and efficiency of production, namely: (1) An increase in intensity of effort per operative hour; (2) an increase in the number of operative hours per individual per day; (3) an increase in the number of operative individuals; (4) a perfecting of methods, processes, and organisations, thereby eliminating waste of operative hours.

Dealing with the question of increasing the number of operatives in industry, he said: "Trade unionism to-day obstructs the employment of the unskilled, and only recognises a dead-level of the skilled, with the result that development on specialised lines for mass production to reach a world market is retarded or prevented. Due to its strength it can impose this handicap on the directional authority, and this produces inefficient production, with its consequential results. There is a vast army of nondescript labour not lacking intelligence, but only in need of training and guidance to enable it to raise its standard of living, its self-respect, and its value to the nation, but denied the opportunity of doing so by the dead hand of the trade unions, and permanently kept at a level, which is a source not only of weakness but of danger to the State. The war taught us the vast industrial reserve we had left unutilised—let us recognise its value in the emergency which now fronts us, and let the community call for the barriers to be let down which prevent it functioning freely to-day."

He suggested the following considerations as essential to any constructive and remedial policy:—(1) A temporary stabilisation of wage rates for twelve months; (2) the assumption of responsibility for unemployment relief by industry as a whole, not sectionally, as had been proposed; (3) certain changes in the incidence of taxation in industry; (4) the removal of trade union obstruction to payment by results; (5) the recognition by the State of the principle of freedom of employment; (6) the temporary increase of working hours; (7) a reduction and suspension of Government activities in costly schemes of social reform until the industrial performance of the country and the consequent financial position warrants their re-adoption.

PRICES CURRENT OF MATERIALS.*

[Owing to the exceptional circumstances which prevail at the present time, prices of materials should be confirmed by inquiry. Since our last issue lead and oil prices have been revised.—Ed.]

BRICKS, &c.

Per 1,000 Alongside, in River Thames up to London Bridge. £ s. d.

Best Stocks 4 17 0

Per 1000, Delivered at London Goods Stations.

	£ s. d.		£ s. d.
Flettons	3 14 6	Best Blue Pressed Staffordshire ...	10 6 0
Best Stourbridge Fire bricks	12 13 6	Do. Bullnose ..	10 8 6
		Blue Wire Cuts	8 8 6

GLAZED BRICKS—

Best White, Ivory, and Salt Glazed Stretchers ..	28 10 0	D'ble Str'tch'rs	36 0 0
		D'ble Headers	33 0 0
Headers.....	28 0 0	One Side and two Ends ..	37 0 0
Quoins, Bullnose and 4½in. Flats	34 0 0	Two Sides and one End	35 10 0
		Splays and Squints.....	35 10 0

Second Quality, £1 per 1,000 less than best. Cream and buff, £2 extra over white. Other colours, Hard Glaze, £5 10s. extra over white.

	s. d.	
Thames Ballast	19 6	per yard, delivered
Pit Sand	25 0	
Thames Sand	25 6	2 miles
Best Washed Sand	25 6	radius
½in. Shingle for Ferro-Concrete	24 6	Paddington ton.
¼in. " "	25 6	" "

Per ton, delivered in London area.

	£ s. d.		£ s. d.
Best Portland Cement	4 7 6	..	4 13 0

80/6 alongside at Vauxhall in 80-ton lots.

Ferrocrete per ton extra on above. 10 0

Best Ground Blue Lias Lime 2 19 6 at riy. depot.

NOTE.—The cement or lime is exclusive of the ordinary charge for sacks. The sacks are charged at 2s. 6d. each and credited at 2s. each if returned in good condition within three months.

Grey Stone Lime ..... 75s. 0d. per ton delivered.
Stourbridge Fireclay in s'cks 44s. 6d. per ton at riy. dpt.

STONE.

BATH STONE—delivered in railway trucks at Westbourne Park, Paddington, G.W.R., or South Lambeth, G.W.R.. per ft. cube..... s. d. 2 10½

Do. do. delivered in railway trucks at Nine Elms, L. & S.W.R.. per ft. cube 3 0½

Do. do. delivered on road waggons at Nine Elms Depot 3 1½

PORTLAND STONE—

Brown Whitbed, in random blocks of 20 ft. average, delivered in railway trucks at Nine Elms, L.& S.W.R., South Lambeth Station, G.W.R., and Westbourne Park, Paddington, G.W.R., per ft. cube 4 7

Do. do. delivered on road waggons at above stations, per ft. cube.. ..... 4 8

White basebed, 3d. per ft. cube extra.

NOTE.—½d ft. cube extra for every foot over 20 ft. average, and ½d. beyond 30 ft.

YORK STONE, BLUE—*Robin Hood Quality.*

Delivered at any Goods Station London. s. d.

Scappled random blocks .....Per Ft. Cube 17 4
6 in. sawn two sides landings to sizes (under 30 ft. super.) .....Per Ft. Super 11 10½
6 in. rubbed two sides, ditto ..... " 13 3½
3 in. sawn two sides slabs (random sizes) .. 5 3
2 in. to 2½ in. sawn one side slabs (random sizes) ..... " 3 2
1½ in. to 2 in. ditto, ditto ..... " 2 9

HARD YORK—

Delivered at any Goods Station London.

Scappled random blocks .....Per Ft. Cube 13 3
6 in. sawn two sides landing to sizes (under 40ft. super.) .....Per Ft. Super 10 3
6 in. rubbed two sides ditto ..... " 12 1
4 in. sawn two sides slabs (random sizes) " 4 11
3 in. ditto, ditto " 6 2½
2 in. self-faced random flags ..Per Yard Super 16 2

WOOD.

GOOD BUILDING DEAL.

Inches	£ s.	
4 × 11	67 10	per standard
4 × 9	67 10	"
4 × 8	60 0	"
4 × 7	50 0	"
3 × 8	48 10	"
3 × 7	47 10	"
2½ × 7	47 10	"
3 × 6	45 0	"
3 × 11	65 0	"
2 × 11	65 0	"
3 × 9	57 10	"
2½ × 9	57 10	"
3 × 4½	47 10	"
3 × 4	47 10	"

PLANED BOARDS.

1 × 11	67 10	"
1 × 9	65 0	"

PLAIN EDGE FLOORING.

Inches		
¾	40/-	square
1	45/-	"
1	52/6	"
1¼	66/-	"
1½	75/6	"

TONGUED AND GROOVED FLOORING.

Inches		
1	52/-	square
1¼	66/-	"
1½	75/-	"

WOOD (*Continued*).

MATCHINGS (BEST).

Inches		
¾	36/-	square
¾	42/6	"
1	54/-	"

BATTENS.

Inches	£ s.	
¾ × 2	45 0	per standard

SAWN LATHS.

Per bundle	0 6 6			
Dry Wainscot Oak, per ft. super, as inch	0 3 6	to	0 4 0	
¾ in. do. do.	0 3 0	..	—	
Dry Mahogany—Honduras, Tabasco, African, per ft. super, as inch	0 2 6	to	0 3 0	
Cuba. Mahogany	0 4 0	to	0 4 6	
Teak (Rangoon, Moulmein or Java), per load.. ..	75 0 0	to	85 0 0	
American Whitewood planks, per ft. cube ..	0 18 0	to	1 4 0	
Scotch Glue, per cwt.	10 0 0	..	—	
Liquid Glue, per cwt.....	6 12 0	..	—	

SLATES.

1st quality slates from Bangor or Portmadoc in truck load delivered London area. Per 1,000 of 1,200.

		£ s. d.
Best Blue Bangor Slates,	24 by 12	56 10 0
" " "	22 by 12	46 0 0
First quality "	22 by 11	42 10 0
" "	20 by 12	42 0 0
Best Blue Portmadoc	20 by 10	36 10 0
" "	18 by 10	29 10 0
First quality "	18 by 9	24 5 0
" "	16 by 10	22 15 0
" "	16 by 8	18 0 0

TILES.

	Per 1,000 f.o.r. London. £ s. d.
Best machine-made tiles from Broseley or Staffordshire district.....	6 15 0
Ditto hand-made ditto.....	7 5 0
Ornamental ditto	7 2 6
Hip and valley tiles (per dozen)	0 15 0

METALS.

JOISTS, GIRDERS, &c., TO LONDON STATION PER TON—

	£ s. d.
R. S. Joists, cut and fitted	39 0 0
Plain Compound Girders	43 0 0
" Stancheons	45 0 0
In Roof Work	49 0 0

WROUGHT-IRON TUBES AND FITTINGS—

(Discount off List for lot of not less than £15 net value delivered direct from works. 5 per cent. less above gross discounts, carriage forward if sent from London stocks.)

Sizes up to and including ¾ in. Tubes.	Sizes up to and including 2in. Tubes.	Fittings.	Sizes 2½ in. to 6 in. Tubes.	Fittings.
Gas .... + 7½	+ 5	— 5	— 2½	— 17½
Water .... + 17½	+ 15	Net	+ 6½	— 15
Steam .... + 28½	+ 26½	+ 5	+ 16½	— 12½
Gal. Gas .... + 32½	+ 30	+ 5	+ 22½	— 7½
" Water + 45	+ 42½	+ 10	+ 32½	— 5
" Steam + 57½	+ 55	+ 15	+ 45	— 2½

L.C.C. COATED SOIL PIPES—London Prices ex works.

	Pipe. s. d.	Bends, stock angles. s. d.	Branches, stock angles. s. d.
2 in. per yd. in 6 fts..	6 4 ..	4 6 ..	5 5
2½ in. " ..	7 3½ ..	4 11½ ..	6 9
3 in. " ..	9 0½ ..	5 5 ..	8 1½
3½ in. " ..	10 0 ..	6 9 ..	9 5½
4 in. " ..	10 11½ ..	7 8 ..	10 9½

RAIN-WATER PIPES, &c.

	Pipe. s. d.	Bends, stock angles. s. d.	Branches, stock angles. s. d.
2 in. per yd. in 6fts. plain	5 6 ..	3 0 ..	4 0
2½ in. " " ..	6 0 ..	3 6 ..	5 0
3 in. " " ..	7 2 ..	4 4 ..	6 8
3½ in. " " ..	8 8 ..	5 4 ..	7 9
4 in. " " ..	9 8 ..	6 4 ..	9 4

L.C.C. DRAIN PIPES,—9 ft. lengths. London Prices. 4 in., 13/6. .. 5 in., 1£/6. .. 6 in., 19/11.

	Per ton in London. £ s. d.		£ s. d.
IRON—			
Common Bars	34 10 0	to	35 10 0
Staffordshire Crown Bars good merchant quality	35 0 0	..	37 0 0
Staffordshire "Marked Bars"	36 10 0	..	38 10 0
Mild Steel Bars	36 0 0	..	38 0 0
Steel Bars. Ferro-Concrete quality, basis price ..	36 0 0	..	38 0 0
Hoop Iron, basis price ..	44 0 0	..	46 0 0
" Galvanised	62 0 0	..	66 0 0
Sheet Iron, and Soft Steel Black—			
Ordinary sizes to 20 g.	50 0 0	..	52 0 0
" " " 24 g.	51 0 0	..	53 0 0
" " " 26 g.	53 0 0	..	55 0 0
Sheets Flat Best Soft Steel, C.R. & C.A. quality—			
Ordinary sizes, 6ft by 2ft. to 3ft. to 20 g.	58 0 0	..	60 0 0
Ordinary sizes, 6ft. by 2ft. to 3ft. to 22 g. and 24 g.....	59 0 0	..	61 0 0
Ordinary sizes, 6ft. by 2ft. to 3ft. to 26 g...	61 0 0	..	62 0 0
Flat and Galvanised Corrugated Sheets—			
Ordinary sizes, 6 ft. to 9ft. 20 g. ".....54 0 0		..	55 0 0

METALS (*Continued*).

	Per ton in London. £ s. d.		£ s. d.
Ordinary sizes, 6ft. to 9ft. 22 g. and 24 g.	55 0 0	..	56 0 0
Ordinary sizes, 6ft. to 9ft. 26 g.	57 0 0	..	59 0 0
Sheets Glavanised Flat, Best quality—			
Best Soft Steel Sheets, 6ft. by 2ft. to 3ft. to 20g. and thicker	56 0 0	..	58 0 0
Best Soft Steel Sheets, 22 g. and 24 g.	57 0 0	..	59 0 0
Best Soft Steel Sheets 26 g.	60 0 0	..	61 0 0
Cut Nails, 3in. to 6in. .. (under 3in. usual trade extras.)	47 10 0	..	48 10 0

LEAD, &c.

	Delivered in London. £ s. d.		£ s. d.
LEAD Sheet, English, 4 lb. and up	48 0 0	..	—
Pipe in coils	48 10 0	..	—
Soil Pipe	51 0 0	..	—
Compo pipe	52 0 0	..	—

NOTE—Country delivery, 30s. per ton extra; lots under 5 cwt., 1s. 6d. per cwt. extra. Cut to sizes, 2s. cwt. extra.

Old lead, ex London area, at Mills ..... per ton	28 0 0	..	—
Do., ex country, carriage forward..... per ton	29 0 0	..	—

COPPER—

Strong Sheet ....per lb.	0 2 3	..	—
Thin " .... "	0 2 4	..	—
Copper nails .... "	0 2 3	..	—
Copper wire .... "	0 2 4	..	—
TIN—English Ingots "	0 2 9	..	—
SOLDER—Plumbers' "	0 1 4	..	—
Tinmen's..... "	0 1 9	..	—
Blowpipe ..... "	0 2 0	..	—

GLASS.

ENGLISH SHEET GLASS IN CRATES OF STOCK SIZES AND IN SQUARES IN ORDINARY SIZES.

Per Ft.		Per Ft.
15 oz. fourths .... 7d.	32 oz. fourths	11d.
" thirds ..... 7½d.	" thirds	1/-
21 " fourths .... 9d.	Fluted, Obscured and	
" thirds ..... 9½d.	Enamelled Sheet,	
26 " fourths .. 10d.	15 oz.	10d.
" thirds ..... 11d.	21 "	1/-

Extra price according to size and substance for squares cut from stock.

ENGLISH ROLLED PLATE IN CRATES OF STOCK SIZES. Per Ft.

¼ Rolled plate	6½d.
¼ Rough rolled and rough cast plate.....	7½d.
¼ Rough rolled and rough cast plate.....	8½d.
Figured Rolled, Oxford Rolled, Baltic, Oceanic, Arctic, Stippolyte, and small and large Flemish white	7½d.
Ditto, tinted	9½d.
Rolled Sheet	7d.
White Rolled Cathedral.....	7d.
Tinted do.	9d.

PAINTS, &c.

	£ s. d.
Raw Linseed Oil in pipes..... per gallon	0 7 3
" " " in barrels .... "	0 7 5
" " " in drums .... "	0 7 7
Boiled " " in barrels .... "	0 7 11
" " " in drums .... "	0 8 1
Turpentine in barrels ..... "	0 11 3
" in drums (10 gall.) .. "	0 11 9
Genuine Ground English White Lead, per ton (In not less than 5 cwt. casks.)	80 10 0
GENUINE WHITE LEAD PAINT— "Father Thames," "Nine Elms," "Park," "Supremus" and other best brands (in 14 lb. tins) no less than 5 cwt. lots .....per ton delivered	110 15 0
Red Lead, Dry (packages extra) .. per ton	80 0 0
Best Linseed Oil Putty ..... per cwt.	4 7 0
Filocol..... per cwt.	1 0 6
Size. X D Quality..... ftkn.	0 5 9

VARNISHES, &c.

	Per gallon. £ s. d.
Oak Varnish.....Outside	0 18 0
Fine ditto ..... ditto	1 0 0
Fine Copal ..... ditto	1 1 0
Pale Copal ..... ditto	1 2 6
Pale Copal Carriage ..... ditto	1 4 6
Best ditto ..... ditto	1 14 6
Floor Varnish..... Inside	0 19 0
Fine Pale Paper ..... ditto	0 18 0
Fine Copal Cabinet ..... ditto	1 2 6
Fine Copal flatting ..... ditto	1 0 6
Hard drying Oak ..... ditto	0 18 0
Fine Hard drying Oak ..... ditto	0 19 0
Fine Copal Varnish ..... ditto	1 0 6
Pale ditto ..... ditto	1 2 6
Best ditto ..... ditto	1 14 6
Best Japan Gold Size.....	0 16 6
Best Black Japan	1 0 9
Oak and Mahogany Stain (water)	0 17 6
Brunswick Black	0 11 9
Berlin Black.....	0 19 9
Knotting (patent)	1 18 6
French and Brush Polish	1 14 0
Liquid Dryers in Terebine	0 16 0
Cuirass Black Enamel	0 7 0

* The information given on this page has been specially compiled for THE BUILDER and is copyright. Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the highest or lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

CURRENT PRICES FOR BUILDING WORK IN LONDON.*

EXCAVATOR.

		s.	d.
Digging and throwing or wheeling and filling carts, and carting away to shoot—6 ft. deep	per yard cube	24	6
Add if in clay	" "	2	0
Add for every additional depth of 6 ft.	" "	1	6
Planking and strutting to trenches	per foot super	0	7½
Do. to sides of excavation, including shoring	" "	1	6

CONCRETOR.

		s.	d.
Portland cement concrete in foundation 1 to 6	per yard cube	55	0
Add if in underpinning in short lengths	" "	10	0
Add if in floors 6 in. thick	" "	4	0
Add if in beams	" "	5	0
Add if aggregate 1 : 2: 4	" "	15	0
Add for hoisting not exceeding 10 ft. beyond the first 10 ft.	" "	4	6

BRICKLAYER.

		£	s	d.
Reduced brickwork in lime mortar and Fletton bricks	per rod	50	5	0
Add if in stocks	"	12	10	0
Add if in Staffordshire blues	"	34	10	0
Add if in Portland cement and sand	"	4	15	0

FACINGS.

		s.	d.
Extra for facing in English or Flemish bond for every 10s. per 1,000 over the price of the common bricks	per ft. super	0	0	1¼

POINTING.

Neat flat strucks or weathered joint	" "	0	0	3½

ARCHES.

Extra only to the price of ordinary brickwork :—				
Fair external in half brick rings	" "	0	1	0
Axed in stocks	" "	0	2	0
Rubbed and gauged jointed in putty camber or segmental	" "	0	7	0

SUNDRIES.

Damp course in double course of slates breaking joint and beaded in Portland cement	" "	0	1	8
Setting ordinary register grates and stoves	each	1	5	0
Setting kitchener, including fuming flues, &c., with all necessary fire bricks	"	6	15	0

ASPHALTER.

		s.	d.
Half-inch horizontal damp course	per yard sup.	9	0
Three-quarter-inch vertical damp course	" "	14	3
One inch on flats in two thicknesses	" "	12	0
Angle fillet	per foot run	0	3
Skirting and fillet 6 in. high	" "	1	6

MASON.

		s.	d.
York stone templates fixed	per foot cube	22	0
York stone sills fixed	" "	35	0
Bath stone and all labour fixed	" "	16	9
Portland stone fixed	" "	25	9

SLATER.

		s.	d.
Welsh 16 in. × 8 in. 3 in. lap, including nails	per square	98	0
Do. 20 in. × 10 in. Do. Do.	"	115	0
Do. 24 in. × 12 in. Do. Do.	"	117	6

CARPENTER AND JOINER.

		s.	d.
Fir framed in plates	per foot cube	9	6
Do. joists	" "	10	6
Do. roofs, floors and partitions	" "	11	9
Do. trusses	" "	14	0

		¾"	1"	1¼"	1½"
Deal rough close boarding	per sq.	60/-	81/-	100/-	108/-

		s.	d.
Flat centering for concrete floor, including struts or hangers	"	68	0
Do. to beams	per ft. sup.	1	10
Centres for arches	"	2	4
Gutter boards and beams	"	1	9

FLOORING.

		¾"	1"	1¼"	1½"
Deal-edges shot	per sq.		82/-	104/-	120/-
Do. tongued and grooved	"		88/-	110/-	127/-
Do. matchings	"	74/-	89/-		
Moulded skirting, including backings and grounds	per ft. sup.	2/4	2/8	3/2	3/8

SASHES AND FRAMES.

		s.	d.
One-and-a-half moulded sashes or casements	per foot super	2	0
Two Do. Do. Do.	" "	2	6
Add for fitting and fixing	" "	0	6
Deal-cased frames with 1 in. inner and outer linings, 1½ in. pulley stiles tongued to linings, hard wood sills with 2 in. moulded sashes in squares double hung, double hung with pulleys, lines and weights ; average size	" "	5	6

DOORS.

		1½"	1¾"	2"
Two-panel square framed	per ft. sup.	2/8	2/11	3/1
Four-panel Do.	"	3/-	3/4	3/7
Two-panel moulded both sides	"	3/4	3/7	3/10
Four-panel Do. Do.	"	3/8	3/11	4/2

CARPENTER AND JOINER—continued.

FRAMES.

		s.	d.
Deal wrot moulded and rebated	per foot cube	22	0

		1"	1¼"	1½"
Plain deal jamb linings framed	per ft. sup.	2/3	2/5	2/9
Deal shelves and bearers	"	2/-	2/2	2/3
Add if cross tongued	"	2/-	2/-	2/-

STAIRCASES.

	1"	1¼"	1½"	2"	2½"
Deal treads and risers in and including rough bracelets	3/4	4/-	4/8	—	—
Deal strings wrot in both sides and framed "	4/6	4/9	—	—	—

		s.	d.
Housings for steps and risers	each	1	0
Deal balusters, 1 in. × 1¼ in.	per ft. run.	0	9
Mahogany handrail ; average 3 in. × 3 in.	" "	6	3
Add if ramped	" "	12	6
Add if wreathed	" "	25	0

FIXING ONLY IRONMONGERY (INCLUDING SCREWS).

6 in. barrel bolts	9d.	Rim locks	2/6
Sash fasteners	1/-	Mortice locks	5/6
Casement fasteners	1/6	Patent spring hinges and letting in to floor and making good	20/-
Casement stays	1/3		
Cupboard locks	1/6		

FOUNDER AND SMITH.

		s.	d.
Rolled steel joists	per cwt.	44	10
Plain compound girders	"	48	10
Do. stanchions	"	50	10
In roof work	"	54	10

RAIN-WATER GOODS.

		3"	4"	5"	6"
Half-round plain rebated joints	ft. run	2/-	2/6	3/9	4/3
Ogee Do. Do.	"	2/6	3/3	4/-	5/-
Rain-water pipes with ears	"	2/11	3/9		
Extra for shoes and bends	each	4/7	6/3		
Do. stopped ends	"	2/-	2/6	3/9	4/3
Do. nozzles for inlets	"	2/3	2/9	4/-	4/6

PLUMBER.

		s.	d.
Milled lead and laying in flashings and gutters	per cwt.	77	0
Do. Do. in flats	"	72	0
Extra labour and solder in coated cesspools	each	8	0
Welt joint	per ft. run.	0	6
Soldered seam	" "	2	3
Copper nailing	" "	0	8

		½"	¾"	1"	1½"	2"	4"
Drawn lead waste	per ft. run	1/2	1/11	2/3	4/-	5/-	
Do. service	"	1/10	2/5	3/-	4/9		
Do. soil	"						8/-
Bends in lead pipe	each					4/-	10/-
Solderer's stop ends	"	1/6	2/-	2/6	3/6	4/3	
Red lead joints	"	1/1	1/4	1/7	2/4	3/-	6/-
Wiped soldered joints	"	3/6	4/3	5/-	6/-	8/-	12/-
Lead traps and cleaning screws	"				18/-	24/-	
Bib cocks and joints	"	7/6	11/3	18/-	48/-		
Stop cocks and joints	"	18/-	20/-	30/-	75/-		

PLASTERER.

		s.	d.
Render, float and set in lime and hair	per yard sup.	3	4
Do. Do. siripite	" "	3	9
Do. Do. Keen's	" "	5	0
Add sawn lathing	" "	2	0
Add metal lathing	" "	3	0
Portland cement screed	" "	3	0
Do. plain face	" "	4	6
Mouldings in plaster	per l girth	0	3
One-and-a-half granolithic pavings	per yard sup.	6	9

GLAZIER.

		s.	d.
21 oz. sheet plain	per foot sup.	1	10
26 oz. Do.	" "	2	0
Obscured sheet	" "	2	3
⅛ in. rolled plate	" "	1	3½
¼ in. rough rolled or cast plate	" "	1	4½
¼ in. wired cast plate	" "	1	9½

PAINTER.

		s.	d.
Preparing and distempering, 2 coats	per yard sup.	1	6
Knotting and priming	" "	1	0
Plain painting 1 coat	" "	1	6
Do. 2 coats	" "	2	4
Do. 3 coats	" "	3	2
Do. 4 coats	" "	4	0
Graining	" "	3	0
Varnishing twice	" "	2	6
Sizing	" "	0	4
Flatting	" "	0	9
Enamel	" "	2	0
Wax polishing	per foot sup.	0	11
French polishing	" "	1	9
Preparing for and hanging paper	per piece	2/- to 5/-	

* These prices apply to *new buildings only*. They cover superintendence by foreman and carry a profit of 10% on the prime cost without establishment charges. A percentage of 1½ should be added for Employers' Liability and National Health and Unemployment Acts and from 1s. 6d. per £100 for Fire Insurance. The whole of the information given on this page is copyright.

TENDERS.

Communications for insertion under this heading should be addressed to "The Editor," and must reach him not later than first post on Wednesday.

* Denotes *accepted*. † Denotes *provisionally accepted*.
‡ Denotes *recommended for acceptance*.
§ Denotes *accepted subject to modifications*.

ABERLOUR.—The following are the successful contractors for the first of the new houses to be erected under the Town Council's housing scheme:—Mason, Lawrence, Craigellachie: slater, C. Fraser, Aberlour: plaster, J. Brodie & Son, Elgin; plumber, J. Fyffe & Son, Aberlour; painter, W. Macdonald, Aberlour.

BARNET.—For the erection of 33 additional houses (parlour type) on the Underhill site, for the U.D.C. (including cost of roads and sewers):—

C. Miskin & Co., Ltd., St. Albans	£41,181 18 9
E. J. Logan, Holborn	43,029 0 0
McCormick & Sons, Ltd., London	46,870 0 0
Trollope & Colls, London	40,106 0 0
Royce Cook Construction Co., London	40,028 1 0

(Referred to Housing Commissioners.)

BARNSLEY.—For the erection of 283 houses, for the T.C.:—

*Wellerman's Bros. £251,358

BRADFORD.—Supply and erection of ammonia washer at the Gas Works, for the T.C.:—

Whessoe Foundry and Engineering Co., Darlington £4,700

BRADFORD.—Construction of reinforced concrete tank of 80,000 cubic feet capacity, at sewerage works, for the T.C.:—

*G. & H. Sugden £5,200

BRADFORD.—For heating of Lilycroft Nursery School, for the T.C.:—

*S. Parsons & Co. £364 17

BRADFORD.—Alterations at Gregory School, for the T.C.:—

*Ellis Balmforth & Son £395

BRANDON.—For erection of houses for the R.D.C.:—

*Hogg & Sons—For houses at Barningham, Covey Weston and Hopton.
*G. A. Adams—For houses at Hepwaite.
Average price of houses..... £988 17 11

BUCKHAVEN.—Scottish Board of Health have approved of the following tenders in connection with the local housing schemes:—

No. 2 Development Scheme (consisting of 52 houses)—

*Forrester & Son (*brick*)	£24,034 6 9
*David Dewar (*joiner*)	15,612 14 8
*J. & T. Stobie (*slater*)	9,957 8 2½
*A. Thomson & Co. (*plumber*)	5,583 5 1
*J. & T. Stobie (*plaster*)	4,423 19 10½
*J. C. Martin (*painter*)	2,052 18 10
	£56,663 13 5

No. 3 Development (54 houses)—

*Forrester & Son (*brick*)	£21,885 1 4
*David Dewar (*joiner*)	14,063 11 3½
*W. & D. Thomson (*slater*)	4,155 19 11
*A. Thomson & Co. (*plumber*)	5,516 4 4
*J. & T. Stobie (*plaster*)	4,247 14 11
*W. H. Nairn (*painter*)	1,871 18 0
	£51,740 9 9½

No. 4 Development (48 houses)—

*Forrester & Son (*brick*)	£19,573 12 8
*David Dewar (*joiner*)	12,691 19 5
*W. & D. Thomson (*slater*)	3,720 12 8
*A. Thomson & Co. (*plumber*)	4,902 17 8
*W. & D. Thomson (*plaster*)	3,648 1 0½
*J. C. Rolland (*painter*)	1,676 12 5½
	£46,213 15 10½

CROYDON.—For work at the Relief Station, Church-road, for the Croydon Union. Messrs. Berney & Sons, architects and surveyors, 33, High-street, Croydon:—

*R. Mansell	£93
R. D. Ebbutt	165
Clout & Tysoe	130
Phelps & Wilton	127
C. A. Sedgwick	99
Hanscombe & Smith	97
B. Varcoe & Sons	95
E. Costar	94

ESSEX.—For erection of cottages, for the Agricultural Committee of the C.C.:—

*J. Day & Son, one cottage, Rookes Farm, Berden	£599
*E. G. Bratchell, one cottage, Little Warley Hall Farm	650
*W. Andrews, sub-division of premises, Grove Farm, Elmstead	555

ESSEX.—For bridge repairs in the county, for the Essex C.C.:—

*A. J. Arnold, Tenpenny Bridge	£750 0 0
*A. J. Arnold, bridge near Margaretting	59 3 9
*A. J. Arnold, culvert at Boreham Hill	350 0 0

GUILDFORD.—For erection of picture playhouse, arcade, shops, winter garden, cafe, offices and concert hall. Mr. Frederick J. Hodgson, architect, 161, High-street, Guildford:—

*R. Wood & Son, Guildford	£38,798
Griggs & Son, London	39,703
Tribe & Robinson, Guildford	40,970
Perry & Co., London	43,277
Swayne & Son, Guildford	43,290
Crosby & Co., Farnham	44,010
Hampton & Sons, Ltd., London	44,980
F. Blay, Ltd., London	47,753
William King & Son, London	47,800

HAVANT.—For the construction of roads and sewers, for the U.D.C. Mr. A. E. Stallard, F.S.I., architect, Havant; quantities by the architect:—

W. J. Borrow, Cosham ..... £2,541..
[Lowest tender.]

HULL.—Erection of garage and repair shop, for the Works Committee of the T.C.:—

*Hill & Ward, Hull	£2,797
P. T. Kettlewell	3,137

ILFORD.—Erection of fence alongside Green-lane Watercourse, Ilford, for the Essex C.C.:—

*E. G. White & Sons, Basingstoke.... £159

KEIGHLEY.—For erection of blocks of four houses (Type A) on Broomhill Estate, for the T.C.:—

*James Wharton, Block 4 (*mason's work*)	£1,855 5 0
*W. Pearson, Blocks 4 and 5 (*joiner's work*) per block	678 14 4½
*A. Speak, Blocks 4, 5, 6 and 7 (*plumber's work*) per block	379 16 5
*D. Antrum, Block 4 (*plasterer's work*)	302 7 5
*W. H. & E. Walton, Blocks 4, 5, 6 and 7 (*slater's work*), per block	295 4 6
*F. Crossley, Blocks 3, 4, 5, 6 and 7 (*painter's work*), per block	47 4 9

KELVEDON.—Repairs of Kelvedon Bridge, for the Essex C.C.:—

*W. & C. French, Buckhurst Hill.. £1,083 17

LANCASTER.—For alterations and additions to premises at Penny-street Garage, for Messrs. W. Atkinson & Sons (Lancaster), Ltd. Messrs. Jackson & Jackson, architects and surveyors, 43, Church-street, Lancaster:—

*Thompson & Morris, Lancaster (mason, joiner and slater)	£2,783 0 0
*J. T. Marshall, Lancaster (plumber)	431 7 11

LIVERPOOL.—For painting work, for the Corporation:—

*Crowther & Bailey, at 5, Heald-street, Garston	£107 0
*Do., Do., at Three Gardens	181 0
*W. Bell & Co., at Port Sanitary Hospital	138 7
*Tippen Bros., at City Hospital	363 0

LIVERPOOL.—For alterations and additions to premises on Holly Lodge estate, for the purpose of a secondary school for girls, for the T.C.:—

*W. Tomkinson & Sons £25,900

LIVERPOOL.—For repairs to greenhouses at Stanley Park, for the T.C.:—

*Crowther & Bailey £139

LIVERPOOL.—The City Council has accepted tenders for the erection of houses, as follows:—

*P. E. Woods, 250 houses on the Larkhill area.
*G. Calver & Co., 20 houses on the Calver system.
*R. Costain & Son, 100 houses on the "Duo Slab" system.

LONDON.—For painting, &c., at Great Smith-street baths, for the Westminster C.C.:—

*W. Whiteley, Ltd.	£2,300 0 0
Catterall & Son	2,307 0 0
Townsend & Pearson	2,432 0 0
J. R. Sims	2,437 0 0
Edwards Construction Co.	2,505 3 6
Wright & Son	2,715 0 0
Burton Bros.	3,485 0 0

LONDON.—For reglazing roof over second class swimming baths at Marshall-street, for the Westminster C.C.:—

*J. R. Sims	£289
Townsend & Pearson	299
Wright & Son	329
W. Whiteley, Ltd.	334
Burton Bros.	345

LONDON.—For reconstruction work at second-class swimming baths, at Great Smith-street, for the Westminster C.C.:—

*Army & Navy Co-Operative Society, Ltd.	£900 2 0
G. Holland & Sons	920 5 2
Townsend & Pearson	935 8 4
Bywaters & Sons, Ltd.	1,050 13 4
Kirk & Kirk	1,100 0 0
W. Whiteley, Ltd.	1,158 0 0
W. H. Gaze & Sons, Ltd.	1,167 0 0
J. R. Sims	1,207 0 0

LONDON.—For construction and repairs of gullies and hoppers, for the Westminster C.C.:—

*D. R. Paterson, Ltd. £1,778 3

LONDON.—Supply of certain items of iron castings, for the Westminster C.C.:—

*W. Murrell & Co. £1,428

LONDON.—For repairs to wood-paved carriageways in six streets, for the Westminster C.C.:—

*G. J. Anderson £7,023 17 4

LONDON.—For repair of asphalt footways and substituting asphalt for flagged footings, for the Westminster C.C.:—

	Compressed Asphalt.	Mastic Asphalt.
Val de Travers Asphalt Co.	£3,720 0 0	£3,720 0 0
New Bradshaws Asphalt Co.	4,205 13 4	3,916 6 8
London Asphalt Co.	3,751 0 0	3,751 0 0

LONDON.—For the erection of 74 houses and incidental works, on the Norbury Estate, for the L.C.C.:—

*Rowley Bros. £85,759

LONDON.—For painting fire stations, for the L.C.C.:—

Group A stations—

*Triggs & Co.	£1,769
A. & F. Polden	1,987

Group B stations—

*Triggs & Co.	2,455
F. & T. Thorne	2,699
J. Scott Fenn	2,876
J. & C. Bowyer, Ltd.—On a prime cost basis, George Parker & Sons, Ltd.—On a prime cost basis, plus 17 per cent.	

Group C (Chief station)—

*Triggs & Co.	1,797
J. Scott Fenn	1,987
Walter Lawrence & Son, Ltd.	2,045
J. R. Sims	2,191
J. & C. Bowyer, Ltd.—On a prime cost basis.	

LONDON.—For paving works, for the Westminster C.C.:—

*Limmer Asphalte Co—Buckingham-gate (R.A.)	£3,792 10 0
Limmer Asphalte Co.—Prince's-street (A.A.)	2,243 5 0
Val de Travers Asphalte Co.—South Molton-street (R.A.)	4,005 11 8
Limmer Asphalte Co.—Upper Brook-street (A.A.)	3,215 0 0

R.A.=Rock asphalte. A.A.=Artificial asphalte.

LONDON.—For repairs to swing bridge at Grosvenor Canal, for the Westminster City Council:—

E. W. Taylor & Co.	£310
J. R. Sims	335

LONDON (WANDSWORTH).—For alterations, &c., at the Union Offices, St. John's-hill, S.W.18, for the Wandsworth Union:—

*E. Bartlett & Sons, New Malden	£285 0 0
J. Sands, Tooting	320 0 0
S. M. Simons, S.W.17	340 0 0
Hudson Bros., St. John's-hill, S.W.	340 0 0
E. S. Wensell, Tottenham	359 0 0
A. Phelps & Wilton, Ltd., Streatham	365 0 0
Hammond, Son & Moth, Chelsea	371 8 0
T. Sheppard & Co., Clapham	381 5 0
R. A. Jewell, Ltd., Wandsworth	389 0 0
Sims & Sims, London, N.W.1	430 0 0
Peter Jones, Ltd., Chelsea	432 15 0
W. Whiteley, Ltd., S.W.2	438 0 0
Wimbledon, Merton & District Co-operative Building Association, Ltd., Merton	500 0 0
A. Pitkin, Fulham	561 12 9

LONDON (WANDSWORTH).—For painting, &c., at St. John's-hill Infirmary, for the Wandsworth Union:—

*J. Sands, S.W.15	£60 0 0
A. Phelps & Wilton, Ltd., Streatham	75 0 0
E. Bartlett & Sons, New Malden	78 0 0
E. S. Wensell, N.15	80 0 0
Hayward Bros., S.W.17	85 10 0
G. & H. Croxford, S.W.12	87 10 0
Curd Bros., S.W.13	88 10 0
C. Horton & Co., S.W.18	90 0 0
R. A. Jewell, Ltd., S.W.18	96 0 0
R. Haslam & Son, S.E.18	97 0 0
W. Whiteley, Ltd., W.2	104 10 0
Peter Jones, Ltd., S.W.3	110 13 0
W. Stamper, W.1	117 10 0
S. M. Simons, S.W.17	120 0 0
Hammond, Son & Moth, S.W.8	122 7 0
A. Pitkin, Fulham	124 10 6
T. Sheppard & Co., S.W.11	132 2 0
Hudson Bros., S.W.11	140 0 0
Sims & Sims, N.W.1	151 0 0
E. Green, Merton	155 0 0
T. Rutter & Son, S.E.15	178 12 6
Wimbledon, Merton & District Co-operative Building Association, Ltd., S.W.19	220 0 0

LONDON (HACKNEY).—For erection of rifle range, structural alterations, repairs and decorations at Nos. 51 and 53, The Grove, Hackney, for the 10th Battalion of the Territorial Force Association of the County of London. Mr. Malc. W. Matts, Lic.R.I.B.A., architect, Staple House, Chancery-lane, W.C.2:—

*Arthur J. King, Ltd., Hackney £6,345

NEWPORT, I.W.—Supply of 460 tons of 1¼ in. Alderney Granite, to the T.C.:—

*Rowe & Mitchell ..... 14s. 6d. per ton

REDRUTH.—For additions and alterations to the West Cornwall Miners' and Women's Hospital. Mr. Leonard Winn, architect, 27, Boscawen-street, Truro :

*N. J. Jory, Hayle *(builder)*	£5,775 7 6
*R. Alger & Sons, Newport *(central heating)*	721 0 0

SHEFFIELD.—Supply and fixing of cables to connect up filtration plant at High Loft Station to screens at Low Loft Station, for the Water Committee of the T.C. :—

*Dewhurst's Engineering Co...	£1,020 13 10

SOUTH SHIELDS.—Erection of 1,000 houses on Cleadon Park Housing Estate, for the T.C. :—

*Creighton Construction Co. :	
Type "A 1"	£900 0
" "A 1 A"	900 0
" "A 2" & "B 2"	1,001 13
" "A" & "B 2 A"	960 15
" "B 3"	955 0
" "B 4"	1,036 0
" "B 5"	980 0
" "B" & "B 4," No. 6 ..	1,026 0

The Council may extend the contract to comprise 1,300 houses or can, on conditions, break the contract on the completion of 300 houses.

SOUTH SHIELDS.—For construction of roads and sewers on housing estate, for the T.C. :—

*Geo. Thornton & Co.	£30,668 9 9

SOUTHWICK.—For making 400 yards of new roads in connection with the housing scheme, for the U.D.C. :—

‡J. Parsons & Sons, Hove	£3,080 0 0
Macdonald & Co., Southwick	3,588 0 0
Wimpey & Co., London	4,056 9 11
H. Farrow, London	4,073 3 10
W. J. Burstow, Brighton	4,757 7 9

STOCKPORT.—For painting at parks and recreation grounds, for the Parks, Museum and Libraries Committees :—

*C. Kirkham, Stockport (Vernon Park).
*T. Traynor, Stockport (Alexandra Park).
*J. A. Blackburn, Stockport (Shaw Heath Recreation Ground).
*Wood & Co., (South Reddish Recreation Ground.)
*F. Howard, Stockport (Heaton Norris Recreation Ground).

WALTON-LE-DALE.—For erection of 66 houses, for the U.D.C. :—

*Higson, Blackburn..	£1,038 5 9 per house

WESTMINSTER.—For alterations to Great Smith-street Library, for the Westminster City Council :—

*J. R. Sims.....	£16,134
Kirk & Rirk (informal).....	15,300
Bywaters & Sons, Ltd. (informal)..	15,967
Townsend & Pearson, Ltd.....	16,456
Army & Navy Co-operative Society, Ltd.	16,921
Higgs & Hill, Ltd.....	17,199
Rice & Son.....	17,300
Gaze & Sons, Ltd.....	17,380
Holland & Sons	17,571
William Whiteley, Ltd.	—

WILLESDEN.—For cleaning and painting work at the Willesden Institution, Acton-lane, for the B.G. Mr. A. Saxon Snell, Guardians' Architect, 9, Bentinck-street, W.1. Quantities by Messrs. Northcroft, Neighbour & Nicholson, 55–56, Chancery-lane, W.C. :—

*Banham & Cox, Golders' Green	£5,195
Greenwood, Burnley	5,548
Breves, London	6,119
British Renovating Co., Canning Town	6,594
Inns, Bishopsgate	6,715
Robertson, Kilburn	6,860
Whiteley's, Bayswater	7,743
Welchman & Wise, London	7,950
Geo. Hill, Streatham	8,203
Pitkin, Fulham	8,535
Peter Jones, London	8,771
Sims & Sims, London	8,844
Gen. Building Co., London	9,086
Holmes & Son, London	9,650
Tredegar, London	9,885
Meckhonik, London	10,033
Easty, Kilburn	11,292

TRADE NEWS.

Mr. H. Johnston Thomas, builders' material manufacturer and merchant, has removed from Thornton Heath to 11, Duke-street, London Bridge, S.E. 1

The head offices of Messrs. Siemens Brothers & Co., Ltd., and of Messrs. Siemens Brothers Dynamo Works, Ltd., will be removed shortly from Palace-place Mansions, Kensington, W.8, to Caxton House, Westminster, S.W.1.

Messrs. Hayter, Ltd., of 82, Victoria-street, Westminster, S.W.1, have placed on the market a tube stay for the purpose of fixing a casement window in any open position desired without the use of threads or screws. It is claimed that this stay can be fitted without alteration to any casement window or fanlight, however hung, and is equally applicable to French windows and doors; that rust cannot affect its action; that as both ends are fixed the window cannot fly free, and it is impossible for it to rattle; and that it is very neat and simplicity is its keynote.

The General Electric Co., Ltd., of 67, Queen Victoria-street, E.C., has issued a new "Industrial and Street Lighting Fittings and Accessories Catalogue" (Section F.1), containing much technical illuminating engineering data, illustrations, and particulars and prices of fittings and accessories for industrial lighting and street lighting. In the first section are illustrated fittings suitable for the lighting of workshops, stores, shops and offices, together with complete technical data and instructions regarding their installation and use. The fittings include extensive, intensive and angle type steel reflectors for local lighting and semi-indirect ceiling fittings for both high and low ceilings. In the second section are illustrated a large number of lanterns for street lighting with "Osram" gas-filled lamps, together with lamp standards, time switches, and accessories. Of these lanterns the "City" and "Metropolitan" are specially designed for the lighting of main thoroughfares. Several of the lanterns are also designed for the illumination of yards, sidings, railway stations, docks, &c., and for the illumination of large buildings, such as hotels, theatres, cinemas and offices.

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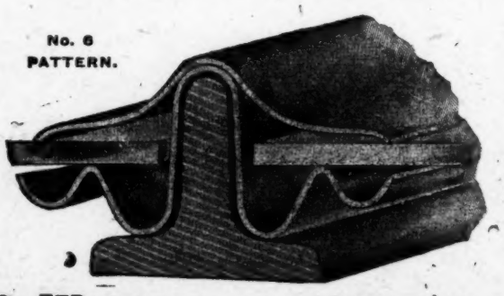

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